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October 2007

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Reviewed, Rated, Ranked



55 Graphics Cards Chomp On Their Pixels



The BitTorrent Network: What, Why, How



We'll Journey To Mars— Tech On Board!



Book-lovers All, They Netted A Great Idea



BioShock. Halo 3. We Played Mega-games.

Jasubhai DIGITAL MEDIA

Editorial

Open Challenge



Deepak Ajwani Executive Editor

THINGS HAVE BEEN going almost too well for Microsoft over the past decade. The company couldn't ask for more than what the world has given them: trust, respect, and the power to overwhelmingly dominate their computing experience.

When one entity enjoys such supremacy—even while there are others who can provide what that entity does—the status quo cannot be maintained too long. We keep seeing signs of change, but last month we saw a bit more than usual—many companies, and even the courts of the European Union, aiming straight for Microsoft's jugular.

A day after EU courts rejected Microsoft's appeal in an anti-trust case against them, Google announced its free collaborative presentation application. Presentations is clearly a PowerPoint alternative.

Then came the news that IBM had launched a free personal productivity application suite called Lotus Symphony, based on the open source OpenOffice.org. It supports the Open Document Format, of which IBM has been one of the leading supporters. Free productivity suites have been offered for years as an alternative to MS Office, though with little success—despite the support of major players such as IBM and Sun.

Then, Yahoo! paid $350 million for Zimbra, a startup that developed a Web-based e-mail and collaboration package comparable with Microsoft Exchange and Outlook.

The Zoho online suite is already making headway in establishing its own online office suite, and is backed by some strong technology.

We've already witnessed the onslaughts on Windows as the *de facto* OS courtesy Linux et al. We're now seeing Office being challenged.

But don't expect Microsoft to lose out any time soon. IDC (International Data Corporation) reports that the market share of MS Office stands at about 95 per cent. Now 95 per cent is not something you can break in one day—or even in one year.

Still the major competitors do all keep trying; more will follow. But think about the power of habit. This issue seems to me like the challenging of your brand of toothpaste. You just don't easily switch! And as humans, even a slight change appears to us as an uphill climb. MS applications have come to mean convenience and comfort, and that creates loyalty.

"The Indians and the Chinese—who are so value-driven—might give the free apps a chance"

To break the habit in India is even more difficult. For many, the steep prices Microsoft commands is hardly a deterrent—they get the best MS software for pocket change, thanks to piracy.

Now if the competition is trying to take you online, the logical step is that sooner than later, Microsoft will shift its office suite online—and the pay-to-use business model will force you to fork out money for your software. And that's when Indians (and the Chinese)—who are so value-driven—might give the free apps a chance. It's *that* possibility Microsoft needs to be prepared for. When paid online office suites become *de rigueur*, populations growing by the millions each year might swing to the movement of all things open. That *should* make Microsoft uncomfortable.

Stay tuned.



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October 2007 • Volume 7 • Issue 10

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ASUS EN8500GT Silent
ASUS EN8500GT TOP
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ASUS EN8600GTS TOP
ASUS EN8800GTS 320
ASUS EN8800GTS 640
ASUS EN8800GTX
ASUS EN8800GTX Aquatank
BIG 8500GT
BIG 8600GT
BIG GF 8400 GS
Foxconn 8600GTS-256
Galaxy 8600GT 512
Galaxy GF8800Ultra
Galaxy GF 8400 GS
GeCube GC-HV195PC3-E3
GeCube GC-HV195XTG3-E3
GeCube GC-RX26PG2-E3
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Gigabyte GV-NX85T256H
Gigabyte GV-NX86T256D
Gigabyte GV-RX26P5512H
Leadtek WinFast PX8500GT
MSI NX8800GTS-T2D320E
MSI RX1900GT-VT2D256E
MSI RX1900XT-VT2D512E
MSI RX1950PRO-T2D256E
MSI RX2900XT-VT2D512E
Point of View 7600GT
Point of View 8500GT 512
Point of View 8600GT
Point of View 8800GTS
Sparkle SF-PX85GT256U2-HP
Sparkle SF-PX85GT512U2-HP
Sparkle SF-PX73SDH-U2-512MB
Sparkle SF-PX76SDH-U2-512MB
Sparkle SF-PX84GS512U2-HP
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XFX PV-T80F-SHE9
XFX PV-T80G-GHF9
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XFX PV-T86J-UAL3
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Zebronics 8600GTS Super

Digital Cameras 00
Canon Digital IXUS 900 Ti
Canon PowerShot A450
Canon PowerShot A460
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Canon PowerShot TX1
Kodak EasyShare C653
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Kodak EasyShare C763
Kodak EasyShare V1003
Kodak EasyShare V803
Media DC-5360S
Mustek MDC530
Nikon COOLPIX L10
Nikon COOLPIX L11
Premier DC6370
Samsung L700
Samsung S850
Samsung i7
Samsung i70
Samsung NV10
Sony Cyber-shot DSC-H7
Sony Cyber-shot DSC-T100
Sony Cyber-shot DSC-W55
Sony Cyber-shot DSC-W90
TECH-COM DSC-512X PLUS
TECH-COM DSC-520
TECH-COM DSC-524X PLUS
TECH-COM DSC-601

BAZAAR 00

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Canon LBP 5300
Dell Inspiron 1720
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Linksys WRH54G Wireless-G Home Router
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Enter



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Ever since we landed on the moon, we've been looking Beyond—specifically, at our red neighbour. Here's the technology that will eventually take us to Mars



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34 Connecting The Masses

The biggest online movement isn't social networking, it's BitTorrent. But what is it? How does it work? All these answers and many more...

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40 The Hand That Rocked The Rig

Games just get more demanding with every new release, so a good graphics card just *has* to figure in your upgrade plans. We've picked more than 50 from the market, so no matter what your budget, you'll find an option here!



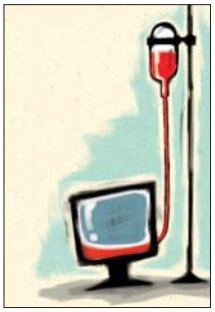
60 Droolmaal

Terrorise hapless civilians in your paintball Panzer and blast the competition to oblivion with the 12-in-one woofer!

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62 Giving Back To The Machines

You've read about cyborgs—humans powered by machines—but what about machines powered by humans?



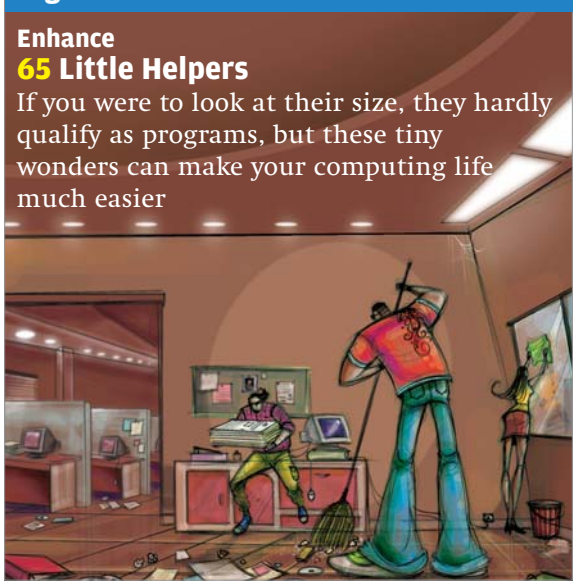
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65 Little Helpers

If you were to look at their size, they hardly qualify as programs, but these tiny wonders can make your computing life much easier



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70 Here's our pick!

It's so easy to be a photographer these days—all you need is an eye for beauty, some money, and one of these 31 digital cameras!



Agent001

104 Live On The Wide Side

With LCD prices dropping to ridiculously low levels, our Agent just couldn't resist picking up one of these babies!

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Ever wondered "What does *this* button do?"Know more about the things you always see, but never really *notice*

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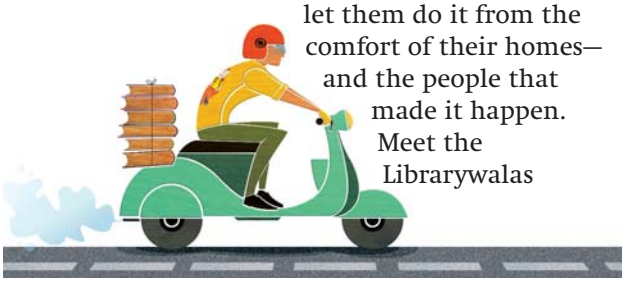
Today, the single largest expense for an organisation is data security—read on to find out how you can get yourself a piece of the hacker- and virus-busting pie



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112 Click, Pick And Choose

One simple idea—give people the ability to borrow books and keep them for as long as they like, and let them do it from the comfort of their homes—and the people that made it happen. Meet the Librarywalas



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If you treat every task as a separate project, you shouldn't be without a project management solution—and this one's free!



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Take Ten

Thought cross-platform gaming didn't exist? Well, it does, and here are ten games that will let even Linux users join the gaming ranks





122 Game On

Two of the most hyped games in recent months—*BioShock* and *Halo 3* reviewed this month. What did we think? Flip over to find out!

139 Tabloid Tech

What does an old Beatle do when he doesn't want to send an e-mail? He gets a minion to do it, of course!



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By Demand

You get to choose what goes on **Digit Interactive**. This month, you chose:

Open Education CD

Size:598 MB



BioShock Demo

Size: 1.2 GB



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Digit Reader Poll

This Month's Question

What is your opinion about owning a Laptop?

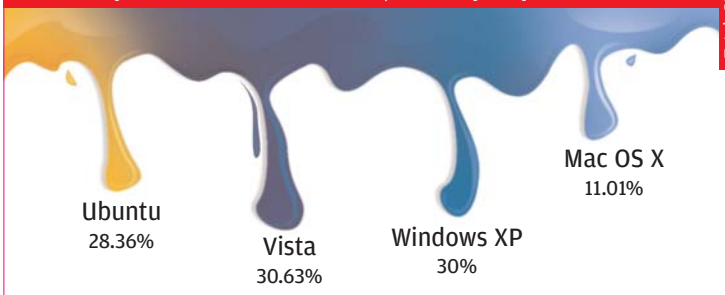
- ☐ a) I have one, but I use it quite like a Desktop
- ☐ b) They're only a style statement—not for me
- ☐ c) I own one and use it a lot on the move
- ☐ d) For a reason other than above, I don't plan on getting one

To vote Log on to www.thinkdigit.com

Last Month's Question

Which OS you think has the best GUI, and why do you feel so?

Total: 3597



taste technology at **www.thinkdigit.com**

THE BIG FIGHT (www.thinkdigit.com/forum)

Second-hand goodies being peddled in Bazaar

Click here to go back to thinkdigit.com

Who: akshitmohan
What: Apple iPod 30GB
Where: Delhi
How Much: Rs 8000 (shipped)
Link: http://www.thinkdigit.com/forum/showthread.php?t=68754

Who: praka123
What: 512MB DDR-2 RAM (Kingston)
Where: Muvattupuzha,Kerala
How Much: Rs 1700
Link: http://www.thinkdigit.com/forum/showthread.php?t=68399

Who: goobimama
What: Geforce 7900GT (No Warranty)
Where: Goa
How Much: Rs 5000
Link: http://www.thinkdigit.com/forum/showthread.php?t=66985



Who: Gigacore
What: D-Link 56k Internal Modem
Where: Bangalore
How Much: Rs 100
Link: http://www.thinkdigit.com/forum/showthread.php?t=68275

Who: sadiq ali
What: Used PSP Games
How Much: Rs 1500 each
Link: http://www.thinkdigit.com/forum/showthread.php?t=63812

Who: ajex
What: BIG 7600GS + Samsung 793s
Where: New Delhi
How Much: Rs 7500
Link: http://www.thinkdigit.com/forum/showthread.php?t=68196

Hacking Attack On A Government Web Site

The Web site of the Government of Maharashtra was hacked and defaced in September. The hacker(s) used at least five proxy servers to get in, so the probability of tracing the hacker(s) is very low. The Cyber Crime Cell of the Crime Branch traced one of the proxies to Washington DC

Hacked!

Key-loggers in all Mumbai Internet cafés!

Mumbai Police are planning to force cyber-café owners to install key-logger software. (The explosions in Hyderabad and Mumbai appear to have been planned in Internet chat rooms. Café owners must register at police headquarters, and log the IP address of every PC!



Enter



Tech Talk

Yeo Eng Yiong
Senior Manager
iPod Product Marketing, Asia Pacific

Apple recently launched the iPod Touch—amongst other iPod versions—in India. We asked Yeo Eng Yiong, senior manager for iPod product marketing for the Asia Pacific region, some quick questions.

Do you have any plans to market the iPod with local content and language options, like in the EU?

With the iPod, you can listen to an almost unlimited number of podcasts via iTunes. As of now, we have quite a few India-centric podcasts which can be downloaded via iTunes or from the Internet.

As far as local language settings for menus on the phone, we believe that since the iPod uses iTunes to sync songs to and from the player (and has no Indian language options either) this should not be a shortcoming.

What's the difference between iPods for Asia and for the rest of the world?

The earpieces of headphones sold with iPods in Asia are smaller than their counterparts in the EU and America. The Asian market is dominated by Flash-based music players that have an inexpensive, plastic feel to them. The iPod, on the other hand, has a stainless steel body with a metallic finish at its back that adds to its appeal. We also noticed that the stainless steel back cover makes the design and overall feel of the iPod classy which attracts more buyers.

Why is the iPod Touch only available in 8 and 16 GB models, when it is geared at watching video on a wide screen?

We wanted to continue to maintain the slim form factor with the iPod Touch. Having a hard drive would only increase its size. Moreover, a hard drive would consume more battery.

IT'S GOT TO END SOME TIME

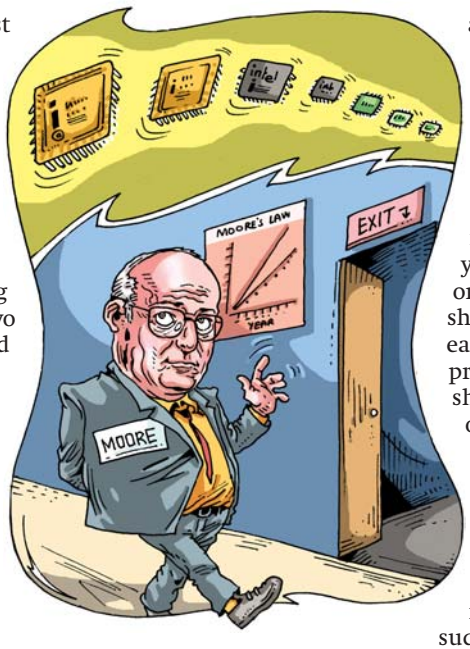
Moore Wraps Up Own Law

It's probably the most famous Law of our times and of our interest: Moore's Law, which states that the number of transistors that can be (inexpensively) placed on an integrated circuit will increase exponentially, doubling approximately every two years. It wasn't declared as a law, and by its nature, it cannot *be* a "law." Still, its been working like one: your processors keep getting cheaper with impeccable regularity.

Now, Gordon Moore, the man behind the Law, has stated that there are fundamental limits to it; that the laws of physics will soon render it obsolete. The original statement having been made in 1965, the rate has held true thus far. Moore now gives it ten to fifteen years more.

What's interesting here is that the man is saying it himself. You see, questions about it have been asked almost every third day: "Will Moore's Law continue forever?" "When will Moore's Law end?" Those questions have now been formally buried.

In any discussion of this landmark announcement, three points must be made. First, it's obvious that it had to end some time. Second, he's said it before—though not as officially. Third, the announcement can be misconstrued to mean "we won't see faster, cheaper computers any more."



Illustrations **Harsho Mohan Chattoraj**

As regards our first point, think about the Law, and you'll realise there *has* to be a limit to its applicability—you can't keep going smaller and smaller and smaller. "Any physical quantity that's growing exponentially predicts a disaster," Moore said. "You simply can't go beyond certain major limits." But technologists have been pushing those limits for long—and Moore has said he's been "perpetually amazed" at that.

Now, back in 2003, Moore had already said about that the fact that materials are made of atoms is a limit that, obviously, can't be argued with. He went on to talk about "bigger chips" being made, and that things could slow down to "every four years" instead of "every two years." Both points were only digressions, but they show that he'd hinted earlier at The End—so this pronouncement shouldn't come as much of a surprise now.

Finally, talking about how progress *will* be made regardless, we could see other technologies—such as nanotech—enabling such things as the speeding up of transistors. In fact, nanotube transistors have already been demonstrated. Then, as we've spoken about before in *Digit*, there's DNA computing, quantum computing, and reversible computing coming onto the scene.

In any case, the current excitement is about the "every-two-years" figure, the figure that's been drilled into our heads. *That* number is on its way out.

The technologies have changed. It's now not just about packing more transistors onto a chip. There are just too many variables, too much innovation—there might never be a Law again, one that so accurately predicts technological progress.

■ New satellite launched to increase Google Earth resolution ■ American Airlines first to launch Net access on flights ■ AMD introduces PC gaming site

Security Watch

Communication, Interrupted

Bugger, An Overflow
A new vulnerability in MSN and Windows Live Messenger could let Malicious Forces take control of your PC simply by inviting you to video chat. The root cause of this is a buffer-overflow error. The vulnerability affects all versions of MSN Messenger between 6.2 and 8.0.

Solution
The problem has been fixed in Windows Live Messenger 8.1, so download the update.

Hello, Virus
"Hey, where I put ur photo ;-) now u populr. oops sorry please dont look there. look what crazy photo Tiffany sent me, looks cool." If you receive this (or a similar) grammatically heinous message in Skype, don't click the link! This is how the Skipi.A virus spreads over Skype. It disables anti-virus programs, blocks security-related sites, installs a password sniffer and spreads itself to your friends.

Solution
Update your anti-virus program. If already infected, download the update from another PC and install it to yours.

STRONGER, HIGHER, ...

Intel: Graphics, Physics, And More

Earlier this year, in June, rumours said Intel was set to challenge AMD and NVIDIA's dominance of the GPU arena with a discrete graphics unit of its own. Now, CEO Paul Otellini indicated at the Intel Developer Forum in September that the company could be on track to demonstrate, in 2008, the capabilities of Larrabee—"a highly-parallel, many-core product comprised of an array of Intel architecture cores." This will indeed be a discrete graphics processor, Otellini revealed. He believes Larrabee would have applications in supercomputing and in physics applications, amongst others. But most importantly, Otellini said Larrabee would be very good at graphics—"teraflops of performance."

Then, Intel also has plans to increase *integrated graphics* performance by a factor of ten by 2010. Current Integrated Graphics Processor (IGP) chipsets are built on a 90nm fabrication process; however, Otellini has said we'll get to see 65nm integrated graphics products in early 2008, which will mean roughly double the performance we now have. Some have commented—and rightly—that this in itself is not much of a statement: integrated graphics today is slow to say the least, so double the performance doesn't mean "very fast."

What *will* be very fast, though, is when integrated graphics chipsets move to a 45nm process. This will be the first time the IGP will be manufactured on the same process as the CPU; in fact, the IGP will be integrated into the CPU.

It doesn't end there: September reports say Intel will buy Havok, one of the two major developers of physics technology for games—the other being Ageia, which you'll recall if you've been reading past issues of *Digit*. Havok's software allows game developers to send physics calculations to the GPU, which is better-designed than the CPU is for those computations—though some debate this. Currently, Havok's code ties into GPUs from both NVIDIA and AMD. It seems all too logical, the purchase of Havok—what with Intel's plans for its own GPU. In addition, it's not only about physics and games: science and

HOT

The Torrent Sites
September 15, MediaDefender's internal e-mails had been leaked onto the Internet was reported by TorrentFreak.com. And now the torrent sites all know what MD is up to. "How sweet when the deceitful fall," one poster said.

NOT

MediaDefender
The company with the agenda of keeping the torrents down has fallen. Sure they try and reduce piracy, but how? In their leaked mails are hundreds of IPs and logins to their servers, lists of their decoy trackers and strategies, and much more.

Opinion Poll

(You, too, can participate in this poll—at **www.thinkdigit.com**)

We asked a few of our readers what they thought about owning a laptop.

a I have one, but I use it quite like a Desktop
b I own one and use it a lot on the move
c They're only a style statement—not for me
d For a reason other than (c), I don't plan on getting one

c



"It'll be (c). I don't like to carry around the weight of a laptop with me. My cell phone is more than sufficient for e-mail and surfing!"

Jaydeep Mohan Joshi, Mumbai

a



"Option (a). I use my laptop only for checking mail, to chat, get on online forums, and transfer photos. These rank the highest in my usage of the laptop. The main reason I chose a laptop over a Desktop is to use the same computer at work and at home, not for its mobility."

Deepak Chander, Chennai

b



"(b) for me—I use it more for official work. The device is a necessity while you fly, go for client visits, or any other work—and everything on the company is just a click away while you are on the move."

Kalash Udapure, Kolkata

b



"I'll choose (b). In college, during presentations, my laptop was a handy tool. It allows me to work while travelling. It allows me to transfer data from my friends' computers, and I have my hard disk's capacity instead of a pen drive."

Arun Kumar Singla, Patiala

b



"My answer is (b)... I love my laptop! It makes work easy when I am on the move. As a student, I still can be in touch with my friends and follow my syllabus. It's just not a style statement for me; it provides me all the tech news that I need. I use my mobile phone to go online."

M A Azeemija, Eluru

d



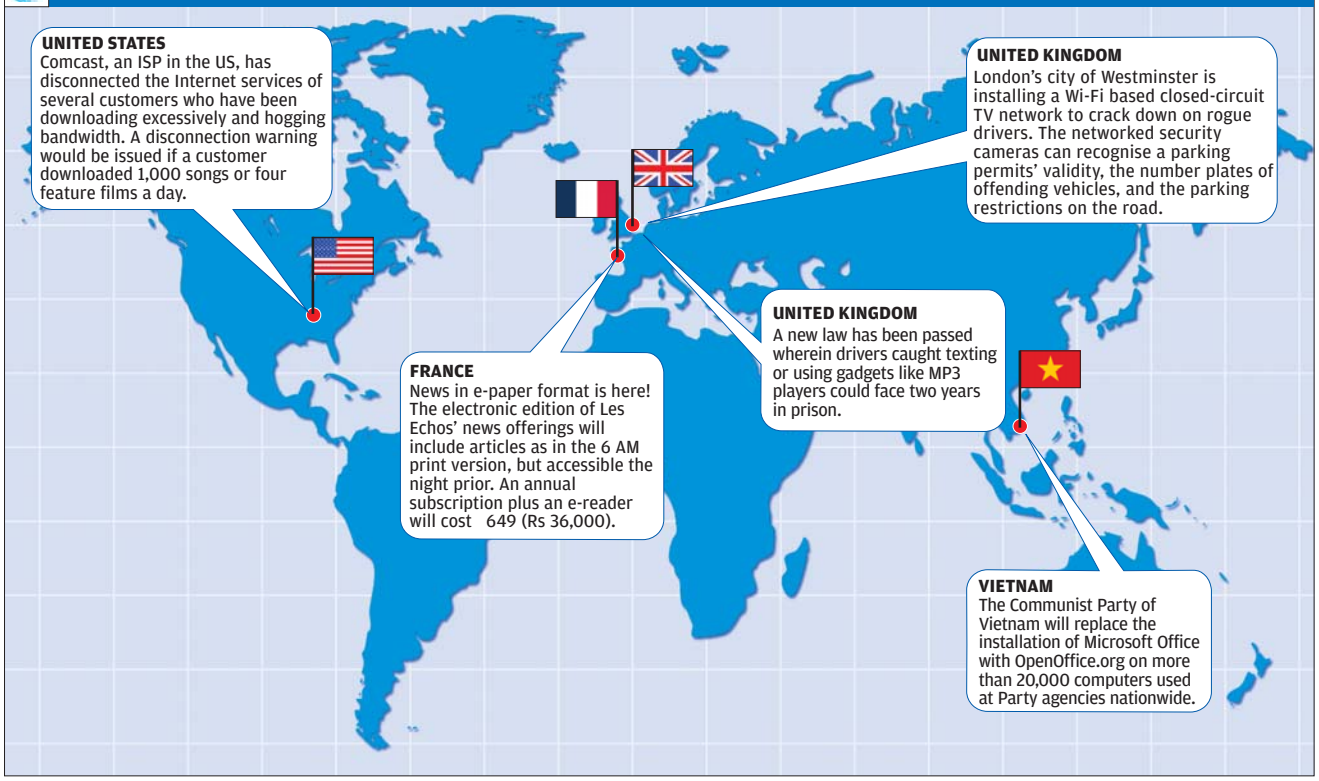
It has to be (d). Laptops are not just style statements, they are also a waste of money. I'm a gamer, so a laptop is a sheer waste of money—hardware upgrades aren't possible! I am happy with my Desktop, and would never want a laptop.

Ayush Gupta, Kolkata

■ Google to launch Sky, a virtual telescope to allow Internet surfers to stargaze ■ Australia's Parliament wants to tighten Internet censorship even further

The Digital World

A Round-up Of Technology News From Across The Globe



engineering application calculations, too, could be offloaded to the GPU. Both AMD and NVIDIA have indeed demonstrated technology to enable this kind of offloading.

Ageia, the other physics company, has its discrete physics cards; reports are that it's struggling with sales of those. And with Intel grabbing Havok, it's not hard to speculate who'll win the physics war. Intel's chips could also become the final destination for all specialised task offloading.

So what does all this mean for us? Well, there are too many variables to consider, too many possibilities to hope for a satisfactory answer. Will integrated graphics become the norm? In fact, will the GPU merge with the CPU? Will competition be stifled, or will it become healthier? Will specialised physics computation in games become de rigeur, powered by Intel? What are NVIDIA and AMD thinking?

All we can guess at is that Intel's one very happy company right now.

USB MOVES UP

Faster Transfers

"When will the successor to USB 2.0 be out" is something people have been asking for some time now; at the Intel Developer Forum in September, CTO Pat Gelsinger demonstrated USB 3.0 technology. It's still in the prototype stage, but we now know USB 3.0 aims to achieve 5 Gbps—that's 10 times the bandwidth of USB 2.0. Apart from Gelsinger's demonstration, the "SuperSpeed" USB promotions group was announced, which has the agenda of finalising the new specification.

5 Gbps requires fibre optic cabling, but the 3.0 iteration will retain full compatibility with USB 2.0.

Gelsinger expects the final specifications to be done by the first half of 2008, and that USB 3.0 peripherals will appear in 2009 or possibly 2010.

Many details remain unclear. Here's one pressing issue: USB as a protocol has been criticised for relatively high CPU usage. Naturally, with dual-core processors, that became less of a problem, but if we're talking about 5 Gbps, the issue could resurface.

One source talks of a detail no-one else has mentioned: that USB 3.0 will be optimised for low power consumption.

USB 3.0 will go ahead of eSATA, which stands at 3 Gbps, and which is the only device protocol that might challenge it—according to some. Not according to Apple, though.

Watch out for Apple's reaction—they're still partial to FireWire (800 Mbps); a 3.2 Gbps iterations is planned for next year, and they're eyeing *10* Gbps after that.

However, if Apple joins the USB 3.0 consortium—read HP, Microsoft, and more—FireWire might well feature in our *Whatever Happened To* section, which talks about things that were.

ALTER EGOS GALORE

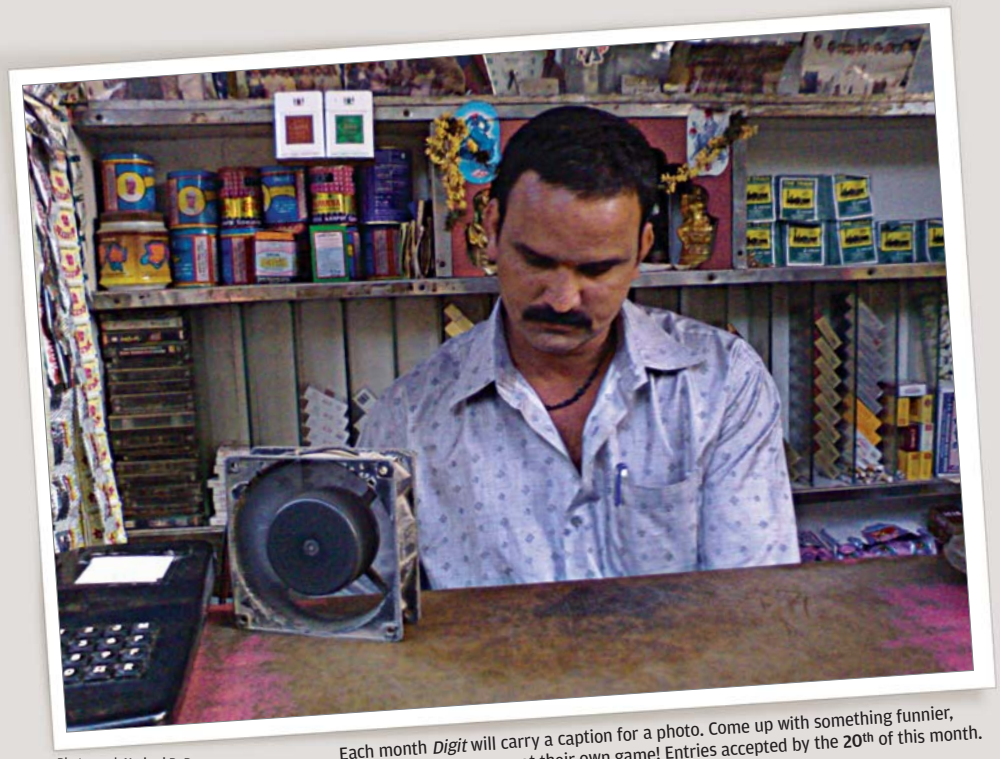
Lying Faces, Prying Into Spaces

This is one of those "new survey results" stories, but we're talking about it because it poses interesting questions.

It's about social networking (SN) sites, which we spoke about last month. Hackers—in general, evil cyber-people—are stealing data from these sites, making it dangerous to reveal data there. Also making it risky for people to reveal good data about themselves are employers. Data published by business networking site Viadeo in March 2007 says a fifth of recruiters look for details about prospective employees online; 25 per cent actually rejected applicants based on what they saw on their blogs or on their MySpace or Facebook profiles!

Now, the survey in question was by market

■ Yahoo! testing its new social networking service called Mash ■ US hardware and video game sales up a whopping 46 per cent from August last year ■



Photograph Yashraj D. Pawar

Each month *Digit* will carry a caption for a photo. Come up with something funnier, and beat the *Digit* team at their own game! Entries accepted by the 20th of this month.

Beat That!

Digit Caption

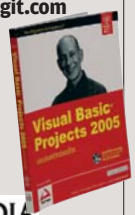
"Cool Desktop"

Last Month's Winner!

Dushyanth.R,
Mysore, Karnataka
"2MBps (Melting Bytes Per Second"



E-mail your caption with the subject "Beat That", and your postal address, to **beatthat@thinkdigit.com** and win **Visual Basic Projects 2005** instantresults by Thearon Willis



Published by WILEY-INDIA

research firm emedia. 65 per cent said they use SN sites for business networking; 58 per cent said SN sites were a platform for exchanging ideas. Other uses included research and getting advice. Of course, the biggest use remains (this wasn't revealed by the survey, but we can guess) things like chatting, making new friends... you know.

Now here's the interesting data: a whopping 62 per cent of those surveyed said they worry, for the reasons we've mentioned, about the security of the sites and the safety of their personal data. About a third said they submit false information. So here's a question for that 33 per cent: if hackers and employers are making you paranoid and insecure, why use the sites... why pretend to be who you're not, like on just any IM or chat-room? Isn't the point of SN sites to network like in the real world?

Social networking sites have a lesson to learn from this. They've already degraded a little into being something like chat-rooms, and they need to make sure the downslide doesn't continue. How?

Consider this. Facebook, for example, asks you to verify your relationship with someone you claim to know. So when you say you went to school with someone, that someone has to approve of that information you submit. You can't just say you lived with someone when you didn't. Now along the same lines, how about when someone does a search on you... can't the sites ask you for permission before they reveal any details about you? "Ms X tried to click on your profile. Allow?"

The sites could take a cue from Amazon's "Real Name" system, where you submit your credit card number to verify you are who you say you are. Such members of, say, a site with only over-16 members, could give out badges for "verified real" members. And then, they'd need to *keep* that information secure, with stringent privacy policies.

Sounds totalitarian, but it could be very utilitarian. No-one wants to be cheated online when it comes to identities. Something needs to be done before SN sites get down to the level of casual virtual hangouts.

BUSINESS AS USUAL

Storage Gets Sexier

New things are happening and un-happening on the storage front, and here's a wrap-up of the latest news—because we haven't done one such in a long time now.

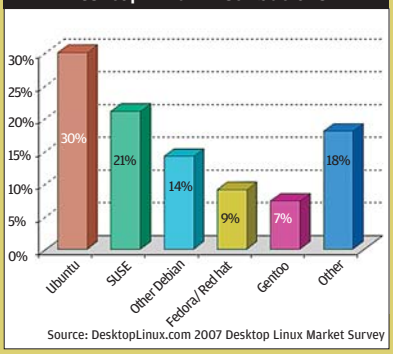
First, researchers from the National Physical Laboratory in the UK have conceived of an entirely new hard disk read head mechanism. To cut a long story short, the magnetic field of the bit on the platter induces a change in the resistance of the read head, which is measured. And the structure that allows for the measurement is relatively large—and thus far, there seems to be no way to make it smaller. If the read heads aren't made smaller, the bits can't be placed closer together on the platter. The news is that the read head structure *can* be simplified. If that happens, the new technology could provide a two-fold increase in storage density. And thus marches on the doubling-of-storage-density-every-year.

Then comes news from the nanotech scene: new research on nanowires points—yet again—to high-density, non-volatile storage. Researchers have long been exploring "phase changes" as a method for storing data: discrete points in a crystalline material are heated and rapidly cooled to make the material amorphous. (That's the phase change—between crystalline and amorphous.) Now, researchers at the University of Pennsylvania have constructed a memory

Stat Attack

It's all in the numbers

Desktop Linux Distributions



Source: DesktopLinux.com 2007 Desktop Linux Market Survey

Americans' **Knowledge Of Online Threats: Only 42% knew they even existed;** 17% of those had fallen for Net scams

One cyber-crime is committed **every 10 seconds** in Britain. Amongst the top categories are the usual suspects: **financial fraud, identity theft, hacking into PCs**

Internet scams have cost Americans $7 bn (Rs 29,000 crore) **since 2005**

Sales of **HD media** stood at **3.7 million** by end of July this year.

Blu-ray: 2.2 mn.
HD-DVD: 1.5 mn.

Only 40% of PS3 owners knew their console had a **Blu-ray player!**

device based on a nanowire. The information is stored in the physical structure of the nanowire, and the physical structure is altered by pulses of current between crystalline (not so resistive) and amorphous (highly resistive). That makes for ones and zeroes, which means... storage! These memory gates have read/write times between 50 to 100 ns, which is slower than RAM but not much slower than hard disks.

Then, at the Intel Developer Forum, Pat Gelsinger made a passing reference to a hardware-based disk encryption technology called Danbury: there will be encryption hardware *in the chipset*, that will be used to encrypt the drive.

Coming to optical storage, Warner has decided to forget about its Total HD hybrid format. Slated to arrive by early 2008, Total HD offers both Blu-ray and HD-DVD content on a single disc. Yet another attempt to make peace between HD-DVD and Blu-ray has failed.

More on the innovation front: an Israeli start-up called Mempile has built a see-through disc called the TeraDisc which uses fluorescence to store 600 to 700 GB. In a year, they say, it will go up to 1 TB. Here, a red laser writes the disc by focusing on a point, causing a chemical reaction so that the fluorescent molecules change state (between fluorescent and non-fluorescent.) The disc is read by looking for the presence or absence of fluorescence. Now we're not overly confident about this one, simply because it seems too good to be true—even the drive will cost just about $3000, it's been reported! Still, keep an eye out.

And finally (coming down to earth from 1 TB!) China has decided—yet again, if you remember EVD—to begin developing its own HD disc format, called CH-DVD. ("CH" for "China"; cheeky.) The format, physically very similar to HD-DVD, could be launched in China by 2008.

Why we're bothered about China is, of course, manufacturing. If CH-DVD is launched, China gets its own HD format—meaning more money for the country because it won't have to pay royalties for manufacturing other formats. But more interestingly, manufacturing for *HD-DVD discs* could move to China as well, because of the physical similarities. And if *that* happens, production costs of HD-DVD discs would drop, and HD-DVD would gain in the race vs. Blu-ray.

To sum it up: the cost per GB or TB, whether on disk or disc, could come down at a rate higher than expected; the HD formats are very much battling it out; and China could make HD-DVD cheaper. A lot's happened in the past month.

POVERTY NO BAR

Wiring The Dark Continent

About 5 lakh people across 10 countries in Africa, whom the UN describes as "the poorest of the poor," will soon be connected to the mobile network. The plan is part of the UN Millennium Villages programme. The UN hopes the connections will help improve education and healthcare while boosting local economies. As an example, there can now be emergency telephone numbers.

The infrastructure—and also solar chargers for phones—have been provided for free by Ericsson. Services, though, will be run and charged for by local operators. In most of the countries being catered to, Ericsson will install a 2G network able to handle voice as well as data at around 200 kbps—more than good enough for Internet access.

Ken Banks of Kiwanja.net, an organisation that helps promote innovative uses for mobiles, said the arrival of mobile phones would spur new businesses. As an example: "Taxi drivers will be using mobiles to get business, as will casual labourers."

Africa is, as you might know, the least-connected continent. Less than 2 per cent of the population has

Buzzword of the MONTH

Microsoft SideWinder

It's raining gaming mice. After Logitech's G9, it's now Microsoft's turn—with SideWinder. Now Microsoft did have a line of gaming peripherals—steering wheels, joysticks, and gamepads—called SideWinder, which was discontinued in 2003, but Microsoft has now announced they are restarting it. The first in the line-up will be the SideWinder gaming mouse, to be released in October.

This gamer's companion is *extremely* customisable, and has a totally new feature—an LCD screen. Then, as you might have come to expect, there are two vertical buttons, adjustable weights for the best grip, and a dented scroll-wheel—all of which will give gamers that extra edge when they are fighting for their, umm, virtual lives. One vertical button, for instance, can be configured so your character can make a 180-degree turn—a definite life-saver in FPS games! The mouse has been called "5,000 mice in one" because with all the hardware and software customisations that can be done, you get nearly 5,000 permutations. The SideWinder will retail at just $79.95 (Rs 3,300).

■ AOL debuts free service for sharing of digital media ■ Plug-and-play protocol becomes ISO Standard ■ Nokia and rivals working on unified-format memory card

WHATWHENWHYWHEREWHOHOW

W5H

WHATWHENWHYWHEREWHOHOW

The Freenet Project

What is it?
The Freenet Project aims to create a fully decentralised, free (as in Free Speech) Internet, where users can upload and access data anonymously, without persecution from the current Internet's Powers That Be—ICANN, for example.

Whose bright idea was that?
Ian Clarke, founder and CEO of thoof.com (which is a bit like Digg, but customisable) came up with the concept in his paper called A *Distributed Decentralised Information Storage and Retrieval System*, eventually leading to the creation of the project itself.

How does it work?
Think BitTorrent for Web sites—you install the Freenet client, and reserve some disk space for the project. That space will then be used to store Web pages, creating a huge storage grid that spans all Freenet's users. An entire site is encrypted and may be spread across as many as a hundred PCs (unlike on a single server now), so anyone with an intention to shut your site down has to hunt down just the right fragments of the site to do so—theoretically impossible.

Why does this tempt us so?
Think about it—an uncensored Internet opens up a whole new world of possibilities. Chinese users are using it to talk about politics without the fear of being clapped in irons, for example. All otherwise censored information is fair play in Freenet (yes, even the kind that just occurred to you).

Will this replace the Internet?
It won't, really. It's more like an underground Net hiding inside the bigger Internet. Besides, it wouldn't work without the infrastructure of the Internet.

Where do I sign up?
Visit **http://freenetproject.org** for more information on the project and to download the client.

access to the Internet. There need to be paying customers before infrastructure is laid out—and poverty is so widespread that it becomes a hurdle.

The Millennium Villages programme is but one step in aiding the continent's progress; it's a long road ahead.

BADDIES AHEAD

Unsafer And Unsafer

In a now-much-publicised statement, new McAfee CEO David DeWalt says cyber-crime has become a $105 billion business, a figure that surpasses the corresponding figure for the illegal drug trade worldwide.

The capacity of law enforcement agencies to find and prosecute cyber-criminals has just not kept up with the pace at which they're evolving. (Read: the criminals are ahead of the rest of us.) As DeWalt so nicely put it, "If you rob a 7-11 you'll get a much harsher punishment than if you stole millions online." (7-11 is a chain of convenience stores.)

Then, speaking to the media in Malaysia at the Hack in the Box Security Conference in September, Lance Spitzner, president of the Honeynet Project, said writers of malicious software have been producing increasingly sophisticated codes with the motivation being money.

In the 1990s or so, security threats were motivated more by the desire for fame (as in notoriety) rather than for profit. It was a "fun" thing: those who carried out exploits for the money of it were looked down upon by the hacker community. But all good things come to an end; it all comes down to the lowest common denominator. It's now organised crime much more than it is about thrills.

Spitzner should know, being president of the Honeynet Project: it is an organisation dedicated to improving the cause of Internet security, employing a network of "honeypots"—decoy servers that lure hackers so as to study their techniques.

Now here's the worrying part: Spitzner says the techniques used by criminal hackers are changing so



rapidly that it's *difficult to keep up with them.* "In the past 18 months, what has astounded me is not how sophisticated the tools are but how fast they have adapted and changed."

"Banking Trojans," for instance, are the latest avatars of malicious software designed to steal data. Mikko Hypponen, chief research officer at F-Secure, says there is currently *no security tool* to effectively protect against Banking Trojan exploits.

Essentially, Banking Trojans work in such a way that everything in the transaction seems OK both to the bank and to the customer—it's not like phishing, where users actually deliver information to the wrong party.

We perhaps don't need to tell you that prevention is the best policy: that one needs to stay away from Web sites that May Harm Your Computer (and Google is increasingly coming to the rescue here), from opening suspicious e-mail attachments, download the latest patches for anti-spyware, anti-virus, and browser...

That's all fine, but will "anti-ware" itself be able to keep pace?

Here in India, hardly as many banking and other financial transactions are done online than in the Western countries, and so, there isn't as much sensitive data on people's computers. But on the other hand, cyber-crime laws aren't half as articulated as they are in the US and other countries. Besides, there's also the fact that more and more people are going to begin transacting online in the next few years. We're getting there.

Experts have been saying all along that the security situation could get worse. So much of our lives—even here in India, at least in the urban areas—are now dependant on bytes streaming from server to faceless server. All those bytes mean money, and few know the workings. It's the proverbial recipe for disaster.

Then, there is still the notion in people's minds that cyber-criminals have only tapped keys; that they haven't done a "real" crime. Those of us who get online often enough know that life in cyberspace isn't really "virtual"—and would tend to think of a cyber-criminal as any other criminal. And part of the problem could just be that those in charge of hunting down the bad guys don't get online often enough... Apart from "apply the latest patches and updates," there's really no conclusion to this one.



Hi-Points

HP's Consumer Fall Launch in Singapore, September 2007

Around this time every year, HP's newest products find themselves under the same roof, being poked and prodded at by the media (that's us) before they're let loose upon the population. We've given the lot a whirl, though their true worth will only come out when our test centre's had its turn.

Raining iPAQs

This was also the largest ever launch of iPAQ handhelds ever—five new iPAQs will hit the markets in the coming months. The iPAQ 212 Enterprise Handheld boasts a sharp 4-inch VGA touchscreen that renders text clearly at the tiniest sizes, and is the ideal for professionals on the move. The iPAQ 612 Business Navigator is the ultimate converged device—quad-band GSM, HSDPA, Wi-Fi (802.11 b/g), 3-megapixel camera, GPS navigation—all in a diminutive package. It also sports an iPod-like "smart-touch" navigation scheme using the raised ring on the keypad, apart from the touchscreen and scroll wheel. All the iPAQs run on Windows Mobile 6, complete with the new Office Mobile.



Media Centre For The Elite



First off the pad is what might prove to be the ultimate media centre PC—the HP Pavilion Elite m9000. It's for the "Digital Elite"—read for those with money to throw away; it's $3,299 (close to Rs 1,40,000) for the works, and packs in an Intel Core 2 Quad Q6600, 2 GB of RAM, a terabyte of storage and a Blu-ray / HD-DVD Combo drive. The entire package looks sweet, but you know how glossy black surfaces beg for fingerprints—keep your cleaning cloth handy. You can enjoy your movies on the beautiful 22-inch LCD, but forget about high-end gaming—the m9000 comes with a comparatively anaemic 8600GT graphics card. Not so elite, that.

All (Literally) In One!



The HP Photosmart C8188 is the mother of all MFDs (or All-in-ones, as HP calls them), and comes at a price of $400 (little over Rs 16,000), which is a small price to pay for what it's capable of. It'll take photos from your camera's flash memory and print them in six-colour, smudge- and water-resistant glory, archive them to a CD or DVD using the built in LightScribe DVD-Writer, and etch them on to LightScribe discs. It'll also scan documents, images and even negatives at 4800 x 4800 dpi, and connect to just about anything, using Wi-Fi or Bluetooth. The new touchscreen interface (to be seen on many new printers and MFDs from HP) is ridiculously easy to use, and it took just over a minute for us to go from picture-on-memory-card to glossy-print-in-hand.

An Inside View

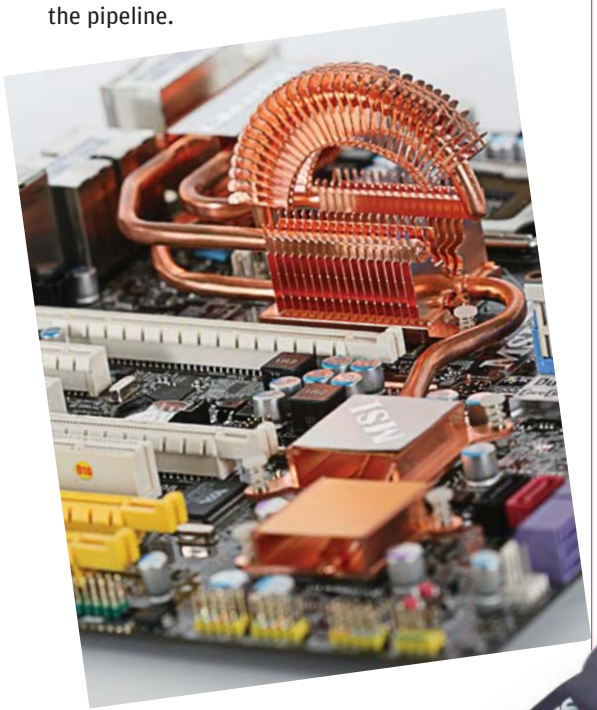
What We Saw Is What You Get! MSI Media Tour 2007

We were privileged to have been invited to this event; more than sixty media representatives from around the world participated, including the likes of Tom's, HardOCP, PC Stats, and TweakTown. This three-day event was in Shanghai, and we got to visit MSI's sprawling factory in the Kunshan region. It comprises two manufacturing buildings (M1 and M2) and one very large R&D centre. At M1, we looked at how MSI manufactures motherboards, and at M2, how they assemble notebooks



MSI's X38 With A New Circu-pipe Design

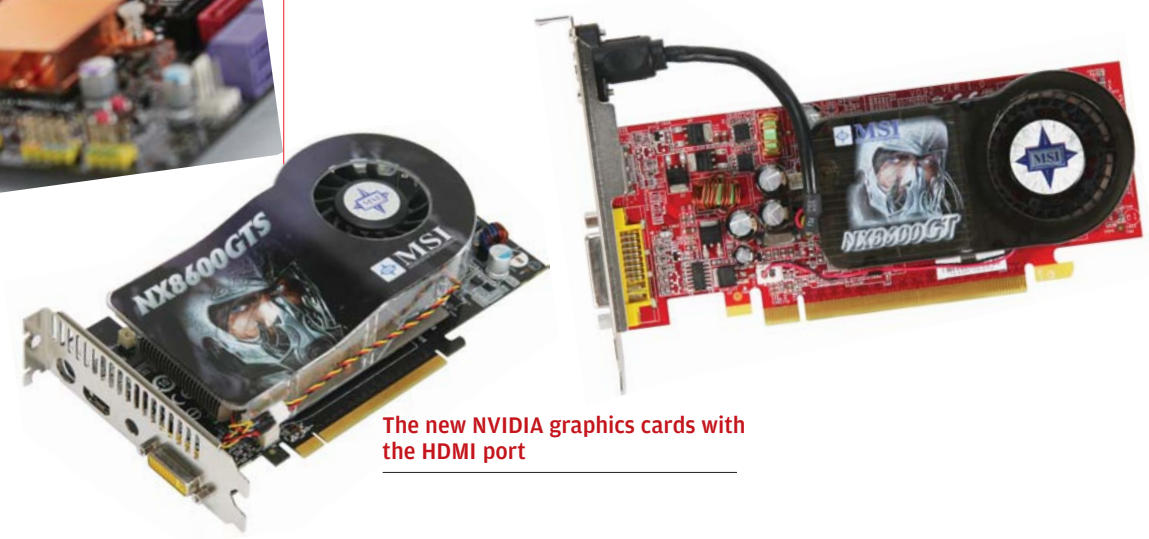
On the trip, we got to see new MSI products that should hit the market within the next two months. The X38 chipset-based motherboard will be out in October, and it will be packed with features beyond your wildest imaginations. Newer VGA cards that support HDMI—from both ATI and NVIDIA—are in the pipeline.



The GX-600: Overclock This!



What MSI was most elated about was their new gaming notebook, the GX600 (and its variants). It has a "TURBO" button for overclocking the processor; however, it doesn't overclock the VGA card—sort of lame considering it's a gaming notebook. We got to play with it and enjoyed a round of *F.E.A.R.*—it looked good, though we can only pronounce a verdict once we review the notebook. Still, we must say that we hope MSI introduces the notebook in India!

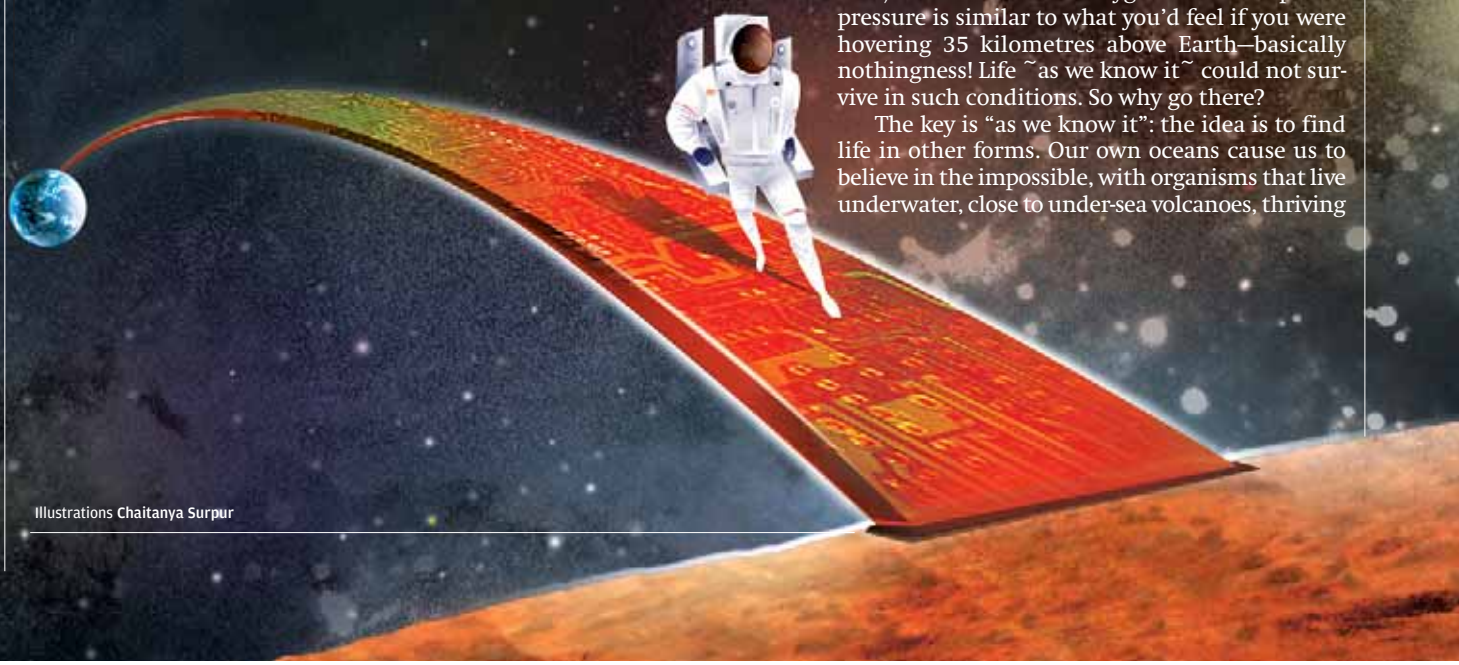


The new NVIDIA graphics cards with the HDMI port

Main Story

The Red Brick ROAD

We're on the brink of another of humanity's historic voyages. We're talking bigger than Armstrong landing on the moon, or any other achievement involving space travel: what will help humans make the trip to mars, and more importantly, get them back safely.



Illustrations **Chaitanya Surpur**

Robert Sovereign-Smith

Named after the Roman god of war, looking fiery red in our telescopes, the fourth rock from the sun, our first stepping stone into "outer space" and perhaps even future home for humans, Mars has always elicited wonderment from us. Until quite recently, in terms of planetary ages, we really didn't know much about the Red planet... here's a brief timeline:

In 1877, Mars' two moons were discovered by astronomer Asaph Hall, and were named Deimos (panic) and Phobos (fear)—after the horses that pulled the chariot of the Roman god of war.

In 1971, Mariner 9 orbited Mars, becoming the first space probe to orbit another planet. It took pictures of the Martian surface and discovered Mount Olympus, the largest known volcano in our solar system—27 kilometres tall (Mount Everest is a mere 8.8 kilometres high), and a whopping 550 kilometres wide!

In 1975, the Viking I and II spacecraft landed on Mars. They sampled the soil and rocks and sent back vital information.

Since then, there have been numerous spacecraft that have orbited, flown by or landed on Mars, each one making new discoveries. For example, we now know that the elixir of life, good old liquid H2O, existed on Mars at one point. We also know that there is enough ice at the poles to cover the entire Martian surface with water—if the polar caps were to be melted.

Why Should We Go There?

The conditions on Mars are hostile—400 kmph winds, icy cold, carrying tiny particles of rust. The atmosphere is sparse, made up of mostly carbon dioxide (95%), nitrogen (3%), argon (a little over 1.5%) and mere traces of oxygen. The atmospheric pressure is similar to what you'd feel if you were hovering 35 kilometres above Earth—basically nothingness! Life ~as we know it~ could not survive in such conditions. So why go there?

The key is "as we know it": the idea is to find life in other forms. Our own oceans cause us to believe in the impossible, with organisms that live underwater, close to under-sea volcanoes, thriving

in that sulphur-rich, superheated hostile environment... There's reason to believe that life exists in extreme conditions, and there's evidence to prove that Mars has ice, water vapour and, albeit for short stints, liquid water. There are also huge caverns on Mars, so deep that natural light from the sun never reaches their bottoms, and these are well-shielded from the extreme climate that ravages Mars' surface. The bottom-line, however, is that we'll never know—not until we get there ourselves and have a look-see.

Problems

Advances in technology are shaping our future, making the impossible possible. People with no legs are running races, dead hearts are being replaced by machine pumps, people are video-conferencing from across the globe, bombs more destructive than fission reactions and that leave no long-term radiation effects have been tested... Trillions of dollars are being spent on defence—that's a 13-figure number—by various countries, and over a billion people have been exposed to PCs. It's all happening, and happening now.

Those of us old enough to read this magazine have seen more change in our lifetimes than a human of any other time has ever seen since the beginning of recorded history.

That digression was necessary to try and give you a sense of wonderment at our achievements, some pride in the capabilities of the human brain... mainly so that we could bring you crashing down again, to reveal to you a harsh reality: man went to the moon decades ago, and since then has been content to stay right here. Impetus in space explorations has slowed to a crawl when compared to the space race of the sixties and seventies. We're stirring though, looking upwards, dreaming of distant worlds—again.

The maximum distance from the Earth to the Moon is roughly a little over 400,000 km; the *minimum* distance from Earth to Mars, however, occurred on 27 August 2003, after 60,000 years, when Earth and Mars were a mere 56,000,000 km apart. Think of those numbers as *4 lakh* and *5.6 crore*, and you will better appreciate the vast distances involved in landing a human on Mars.

Complexities

It's all well and good to sit here in our comfortable chairs and theorise, day-dream and wonder, but the task of attempting to put a man on Mars is several magnitudes more complex than the famed Moon landing. To put it simply, aiming a rocket at the moon seems easy when you start thinking of travelling to Mars. There are problems, and we're looking to technology to solve them...

Navigation in space is quite different and much, much more complex than most of us imagine. There's gravitational pulls from planets and the sun, meteors, comets, space dust, space junk, and more to avoid. Add to that the fact that you're pointing this tiny speck of a craft—launching it from one planet, moving it at break-neck speeds—at another planet that's hurtling through space, and you get complexities and probabilities that will leave even the best mathematicians amongst us scratching their heads.

Propulsion

When you're sending machines, it's a lot easier, because time isn't of the essence. Robots and Rovers don't get bored, they don't need to be fed, and can be turned off to save power. Most importantly, they can just be left there. A human, on the other hand, has to get there quickly, safely, and then has to be brought back.

It's obvious that NASA is leading the world in space exploration technologies, and it has already sent various probes to Mars—even landing the Mars Rovers, Spirit and Opportunity, on the Martian surface in 2003. As of now, the two Rovers have overcome all odds and are still exploring the Martian surface, over three years after their intended 90-day life expectancy passed.

It takes quite a big rocket to launch even a small rover into space—consider that the rockets that launched the Rovers weighed about 2,85,000 kg, of which a mere 1,000 kg was the actual spacecraft that went on to Mars. The fuel and oxygen are used to create the burn at lift off, and a complicated turbo-turbine pump ensures that the amount of fuel and oxygen increases in the engine to break away from the Earth's gravity. The rocket also contains complicated gimbals and gyroscopes to make sure that the rocket stays on its path upwards. (Gimbals are devices used to ensure that an object is always kept horizontal.) The entire rocket engine is mounted on gimbals, and is thus actually movable.

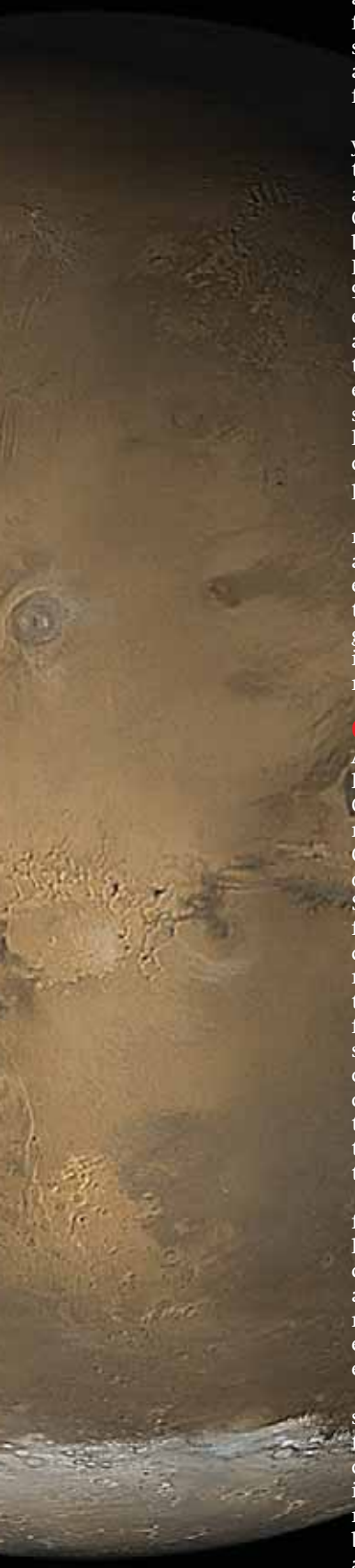
Now there are two smaller engines on either side of the rocket that fire only when the rocket is going off course or tilting towards one side. These also work with the gimbals to ensure that the rocket stays pointed straight up during the launch. As if that weren't enough, there are the nine additional rockets attached to the side of the rocket to provide additional thrust—think nitro boosters of popular car racing games. These nine rockets run on a solid fuel called hydroxyl-terminated polybutadiene (HTPB), held in shells made of graphite-epoxy—up to five times lighter than most metals. That completes Stage I of the rocket motors.

When the rocket is about 130 km above Earth, Stage II kicks in. Stage II is made of a rocket that burns a mixture of Aerozine 50 (50% hydrazine, 50% unsymmetric dimethyl-hydrazine) and nitrogen tetroxide or N2O4 (an oxidiser). Because of the lack of an atmosphere in space, fuels that need ignition cannot be used, and this second-stage fuel is made just for that—the fuel automatically burns when the ingredients are mixed. The Stage II rocket fires once in order to get the spacecraft into orbit around Earth. Only after all the calculations are done, and the Stage II rocket is lined up with its final destination, does it fire again. Here, too, gimbals and gyroscopes are used to make sure that the spacecraft stays on course. Computers onboard the spacecraft do all the manoeuvring and rocket firing.

Power Generation

Many of us Indians are quite used to power cuts, and life just goes on. However, millions of kilometres away from Earth, with no free air to breathe, a spacecraft to man, running computers that an astronaut's life depends on, power short-





ages are unacceptable! Currently, power is derived from the biggest power source in our solar system—our sun. Even the two nomad rovers that are wandering about exploring the Martian surface are solar powered...

The solar panels used on the rovers are not your ordinary run-of-the-mill solar cells; they're tri-layered cells stacked one on top of the other to absorb every last ray of solar power that they can. Currently the two rovers carry two 8 amp-hour batteries that are charged using the solar panels. Each rover was able to produce between 400 and 900 watt-hours of power per Martian day—that's enough to power a 100 watt light bulb between 4 and 9 hours! Of course, when designing all electrical systems and electronic components, NASA's engineers are notably stingy with power consumption values—which results in such a reduced load that the power generated by the solar cells is quite sufficient (unless an astronaut decides to plug in his boom-box for some entertainment!).

The drawback of solar power is that it requires rovers or astronauts to remain in sunlight-rich areas—of Mars or otherwise. This is generally the equatorial region, and trips to the bottom of Martian chasms are a strict no-no. Alternative power generation techniques are being researched, and it's quite probable that the first human exploration of Mars will be nuclear-powered.

Communications

A lot of mankind's space exploration attempts have ended in disaster. A lot of us know about the Challenger disaster in 1986, where seven astronauts were lost. More recently, space shuttle Columbia, with Indian-born Kalpana Chawla onboard, broke up on re-entry in February 2003. Such are the risks associated with human space flight, and these are examples of the worst type of disaster. However, a seemingly smaller and more niggling problem lies in the communication systems. This is more pronounced in unmanned flights, where computers cannot just fix themselves, and often the end result is loss of the spacecraft. Just last year, in November 2006, NASA lost contact with their Mars Global Surveyor, a craft that had been orbiting Mars since 1997. It's still there, orbiting Mars, but NASA just cannot contact it or get it to respond.

This is perhaps the biggest risk of unmanned flights, and while it does not involve loss of human life, billions of dollars in research and development can go down the drain if one antenna fails to point in the right direction. Communication is the key, and it can spell the difference between a miracle man-made robotic explorer and good old space junk.

In order to stay in constant touch with all the spacecrafts out there in space, NASA has what they term the "Deep Space Network" (DSN). This consists of three high-tech communication facilities—one in California's Mojave desert, another near Madrid in Spain and the last one near Canberra in Australia. Working in tandem, these antennas, the most powerful and sensitive telecommunications equipment known to man, can communicate with all working space probes and crafts that have been sent out, no matter where they are.

Super Solar Sail

The rovers took seven months to reach Mars from Earth on conventional propulsion techniques. Drawing inspiration from science fiction, there are many alternative propulsion techniques that authors have written about. Some will stay fiction forever, one is already a reality. Introducing the solar sail, which science fiction works tell us is a huge sail attached to a spaceship that uses the light (photons) emitted from the sun as a "solar wind," propelling the craft attached to it away from the sun. Traditionally, sci-fi writers have spoken of solar sails as engineless, unmanned spacecraft. This would be a good solution for sending a probe out to another solar system, for example, because, honestly, we don't care how long it takes.

You've heard of the Wright brothers... get ready for the Benford twins from Alabama. In 2005, the brothers developed a sail that they claimed could have gotten the two rovers to Mars in under a month! The principle is to not depend on the sun as the energy source, but to generate our own "wind". They created a sail made of a carbon mesh that they hit with directed microwaves. The result was that carbon monoxide was being given off and the sail experienced a considerable "push". They then worked on the theory that a sail could be painted with a film of specially created paint that, when heated, gave off gas and propelled the sail (and the craft attached to it) away.

According to their calculations, if a spacecraft in Earth orbit were to unfurl a square sail 100 metres across, and was bombarded for an hour by a 60 megawatt microwave, the spaceship would accelerate to a speed of 60 kilometres per second—faster than any spaceship has ever gone. This would enable a ship from Earth to reach Mars in under a month.

Now, 60 megawatts is a *lot* of power, and though a lot of people are working on building sails, none that can be folded or stored are possible yet. Perhaps the future will see a combination of the solar sail and nuclear-powered propulsion to get Man to Mars.

As for the spacecraft out there in space, communication is taken care of by two main antennas—a low gain, omni-directional antenna and a mid- / high-gain directional one. The low gain antenna is used when the spacecraft is close enough to Earth to not require focused communicating rays, but once the distance starts increasing to the order of a few million km, the mid-/high-gain antenna is needed to stay in touch with Earth. The drawback of directional antennas is that they are motorised, so there's a highly increased risk of failure. In fact, just before they finally lost contact with the Mars Global Surveyor (MGS), it communicated to NASA that it had a mechanical problem with a solar panel, and rotated itself to make sure it got enough sunlight. However, this rotation pointed the high-gain antenna away from Earth and also exposed the battery to direct sunlight, heating it up beyond

tolerance levels and leaving the MGS dead in space.

System Configuration

Getting to the meaty part for us *Digit-ians*, we want to know what kind of computers are used in spacecraft. We'll take a look at what powers the two rovers currently on Mars to give you an idea.

If you're expecting a supercomputer, you're going to be very disappointed. The computational power on a rover is about as good as the average budget laptop! Why? Take a glance back at *Power Generation* above...

The CPU used in the rovers was a specially designed 32-bit Rad 6000 processor, which is shielded against radiation and is based on the PowerPC architecture—yes, like the ones the older Apple Macs used to run. The CPU is capable of a modest 20 million calculations per second, and is supported by a mere 128 MB of RAM. There's also 256 MB of Flash memory and various other smaller amounts of non-volatile memory. The system is designed specially to waste almost no energy in heat dissipation, and is completely sealed inside what NASA calls a "Warm Electronics Box" (WEB).





Aerogel's almost not even there, yet it's stronger than most

Unlike here on Earth, in space, computers have to be protected against radiation and extreme cold. Considering that the temperature of an average Martian night is about minus 90 degrees Celsius, the air is filled with rust-dust and the atmosphere offers no protection against solar radiation (no ozone layer or even air to help out), it's no wonder the "brains" of the rovers are sealed in the WEB.

The walls of the WEB are painted with gold to reflect radiation; the box itself is completely airtight and insulated with aerogel—a compound that's made up of 99.8 per cent air and 0.2 per cent silica dioxide, is light as a feather, extremely solid and is sometimes referred to as "solid smoke" by NASA engineers.

To give you a better idea about how well aerogel can insulate, consider this: you could take a thin sheet of aerogel, hold a blowtorch under one end and actually place your hand on the other end without feeling anything more than "warmth." It's "solid" too—a slab of aerogel as big as an adult human weighs a mere 455 gm, and can support an object that weighs 500 kg! Don't expect to see it in your local hardware store anytime soon though—it costs way too much to create. Still, if you have money to burn, hop on over to **www.aerogel.com** and see what you can afford.

Software And Navigation

When man does finally go to Mars, he will not be alone. Space exploration relies heavily on robots and vehicles that work as autonomous entities. Computers need to just calculate and work instead of sitting around dumb, the way the average PC does, waiting to be told what to do. During lift-off and early flight, computers do almost everything to make sure that the rocket stays on course. During landing on Mars as well, computers have proven to be quite capable—again, we'll cite the example of the two rovers that were successfully landed on Mars. Humans on Mars will use vehicles to get to and from exploration sites there, and these vehicles cannot be as dumb as the average road car. Let's look at what makes the Mars rovers tick to better understand what will power future landings on Mars—manned or otherwise.

Carnegie Mellon University developed the "navigation and hazard avoidance software" (NHAS) that the two rovers depend on to keep themselves out of trouble on Mars. Using this software, the rovers have achieved an average autonomous driving speed of 34 metres an hour. Before you laugh-out-loud incredulously, exclaiming "34 metres an *hour*?", you should understand the complexities involved.

Mars is a crater-ridden, rock strewn, dusty and stormy planet. With volcanoes three times the size of Mt. Everest, and canyons that dwarf the Grand Canyon, and billions of rocks on its surface, Mars is even the bravest off-road driver's worst nightmare. (Damn those Martians—why couldn't they build highways!) Add to that the fact that each rover is carrying rather expensive and critical information and equipment, and you should understand why the rovers don't just race along the Martian surface, bouncing off boulders sending back messages to Earth that say "Whee, this is fun!".

Each rover is equipped with pairs of stereo cameras to give depth perception similar to what the human eyes afford, and click pictures of the paths in front of them. When the rovers are given a destination (in coordinates) by technicians on Earth, they first identify the destination, clicking pictures of the straight-line path there. Next they start identifying obstacles on the path using the NHAS developed at Carnegie Mellon to examine the high resolution stereo images they click and plot multiple paths. After all calculations, permutations and combinations are done, the rover identifies the shortest path of least resistance (lowest hazard risk path) and then moves between half and two metres. Once it's moved, it re-clicks stereo images and the whole computation process is repeated. Incidentally, the rovers are capable of identifying and measuring the distance to about 16,000 points in each stereo photograph they click!



A Mars rover hard at work



On the left is a before, on the right is during a dust storm—now that's a storm!

Calculating their own movement is not left to simple odometers either. (For those who don't know, an odometer is a device found on cars and motorcycles that calculates the speed and distance traversed by a wheel; it measures this by calculating how fast the wheel is turning and how many times it has



Here's what a rover has to navigate through

turned.) On a rocky, dusty surface with slopes, the possibilities of a rover slipping down a slope—backward or forward—is very real. The rovers adjust for this by calculating distances moved using visual odometer software. What this software does is "remember" previously-identified points on its path and then compare the distance moved by looking at before-and-after images to give much more precise calculations.

The rovers are designed this way to avoid bumping over rocks, falling into canyons and running into walls, so as to protect its fragile interiors, which are already running in extreme conditions. Remember, there's no margin for error on a delicate machine that's on another planet, a hundred million kilometres away from us.

Imaging

The whole point of sending unmanned spacecraft to Mars is to photograph it in order to collect as much visual information about the planet before we send humans there. The results that the rovers have sent back to us are the most exciting images of space exploration we've seen till date—it's about as close as we can get to "experiencing" Mars without going there ourselves.

The cameras on the rovers were perhaps the most high-tech in the world at the time they were made, and they're still being improved. Between the two rovers and the Mars Landers that carried them, NASA has been receiving images from 20 different high-quality, high-resolution cameras at regular intervals. However, it's not the hardware that's impressive, it's the software that manipulates and sends back those images that is of more interest.

Developed specially at NASA's Jet Propulsion Lab (JPL), the imaging software uses ICER wavelet-based compression to reduce image sizes by up to 12 times. Each image that is clicked is divided into 30 chunks and transmitted back to Earth—this is to ensure that if packets are dropped, the entire image is not lost. It compresses images progressively, and features Image Context Error Correction, which accounts for any errors that may occur when data is transmitted along the Deep Space Network. Depending on the needs, the software can achieve lossy or lossless compression of images. It's because of this software that we're able to see more pictures that the Mars rovers click, instead of them transmitting fewer RAW images.

Other Technologies

Although there are literally thousands of technologies involved in building spacecraft that are capable of trips to Mars, we'd have to continue this story over the next 400 issues of *Digit* to tell you about them all in detail. Instead, we've clubbed a few interesting technologies together to whet your appetite:

Batteries: As of now, we don't have batteries that can withstand Martian nights, with temperatures of up to minus 110 degrees Celsius. Instead, all batteries on the rovers, and any vehicles to follow, are encased inside insulated boxes with heaters. The batteries can supply power as long as they are above minus 20 degrees Celsius, and need to be hotter than zero degrees Celsius when they are being recharged. Electric heaters and any heat dissipated from other components are used to "warm up" the batteries.

Heaters: The heaters we just mentioned are radioisotope heaters that can produce about a watt of heat for decades. They produce heat through radioactive decay, and using 2.7 grams of plutonium dioxide, encapsulated in plutonium-rhodium alloy and then locked inside several layers of a carbon-graphite composite.

Space Ship: To go on a round-trip to Mars requires a huge amount of food, water, oxygen and most of all, fuel. It's virtually impossible to send a ship that big into space from Earth. However, building the ship on the Moon, or in orbit in space is possible. Several experts believe that this is the way to go ahead building a ship big enough to go to Mars and back.

Food: This really isn't as big a problem as we think. Food in space flights is just painful to store and eat. Astronauts who already spend weeks in space eat three meals a day, use liquid salt and pepper, and ketchup and mustard to enhance the taste of the food according to their individual tastes. They have to eat out of special containers, of course, to prevent the food from floating away. There's an oven provided to warm up the food, and meals include macaroni and cheese, spaghetti, fruit, brownies, juices, tea, coffee, etc.—seriously, it's not like they're eating little pellets. What's more interesting is that for a really long journey, say, to Mars, small women are more desirable than big, strapping men—a small woman would need about 2,000 calories a day, whereas a macho man would eat over 3,000. Maybe the first humans on Mars will be women, considering that a trip to Mars requires over a year's supply of food!

Air: This is where it all gets complex. Taking the example of the International Space Station (ISS), air is recycled and carbon dioxide removed and "scrubbed" back into oxygen. Oxygen is also produced from electrolysis. In addition, air scrubbers also have to remove ammonia and acetone that the human body produces. Interestingly, scrubbers on the ISS have given trouble before, and reserve oxygen from visiting ships have been used in the past. When travelling to Mars, no such luxuries will be available, so systems to cleanse air and generate oxygen will have to be ~much~ more foolproof and numerous. Another option, of course, is to just use plants to cleanse the air of carbon dioxide and produce oxygen, but again, weight and space constraints will play spoilsport with that idea—not to forget the daily dose of sunlight that plants need in order to survive.

In Summary

A holiday to Mars for the common man is at least a millennium away, but renewed interest in Mars promises to put a man on Mars in a few decades, and most of us will be alive to witness it. Currently, technology is not very far behind what's required to achieve the task, but the prohibitive cost is what's keeping the race to Mars in check. Earlier estimates suggested that it would cost over $300 billion (12 lakh crore rupees) to get a man to Mars, but now NASA hopes to get the job done using less than $50 billion (2 lakh crore rupees) after a couple of decades. Considering the costs, there are many who are against the Mission to Mars, citing the good that the same amount of money could do for humanity here on Earth. However, who knows what untold riches Mars holds in store for humanity, in terms of the discovery of life, new minerals, and an invaluable understanding of the history of our solar system? Perhaps even more clues to the eternal questions "Are we alone?" and "Why are we here?", which humanity certainly cannot place a price tag on?

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Image Credit: NASA / JPL / Caltech



Connecting the Masses

BitTorrent has overshadowed every other P2P network to become the world's bandwidth hog—much to the chagrin of ISPs and anti-piracy activists. It's not all bad though... here's everything you need to know about BitTorrent

Robert Sovereign-Smith

More than one of every three bits of data on the Net is using the BitTorrent protocol, meaning that at least one third of all Internet traffic can be attributed to P2P file sharing on the BitTorrent network. The only other bandwidth hog that comes close is the eDonkey network, again P2P. And about P2P in general, at any given point in time, between 50 and 90 per cent of data being transferred across the Net, globally, is being done so on P2P networks.

Don't misconstrue these numbers: the world is not using only BitTorrent clients for everything. The reality is, one person downloading from P2P networks will use more bandwidth than a hundred or even a thousand people just browsing through sites. It's actually a case of minorities using the majority of the world's bandwidth, but there's no doubt that when talking about P2P, BitTorrent is the first thing people think of today—over 53 per cent of P2P users rely on it to find what they want.

What Is BitTorrent?

Bram Cohen, the man behind the BitTorrent protocol, first released it to the world in July 2001. Back then, everyone's pet problem was sharing large files—imagine wanting to distribute a Linux distro like Ubuntu (about 700 MB), hosting it on a site, and then millions of people trying to download it simultaneously... you guessed it: everyone would share the server's available bandwidth and get little or nothing. Instead, BitTorrent works by allowing all those downloading the same file to download chunks of it from each other as well.

Imaging Shrikrishna Patkar



How Exactly Does It Work?

Let's say users A, B, C and D all want file X. In the traditional HTTP or FTP scenario, a server would host X, and A, B, C and D would all download from the server. This would result in the server's upload bandwidth being shared by all four users. BitTorrent, instead, breaks X into many little chunks and lets all four users download the chunks from the server. However, it also allows for A, B, C and D to download from each other. Owing to the fact that a standard 700 MB file will be broken into, say, 700 x 1 MB parts, user A may be downloading parts 1 through 100 from the server, 101 through 300 from B, 301 to 650 from C (who might have the fastest connection of the lot), and 651 through 700 from D. This helps A achieve a much higher speed than he could normally get from just the server, and this also saves the server from having to upload the file four times to the four different users. Remember, this illustration is simplistic; in reality, the BitTorrent network is quite a bit more complicated—A could be downloading parts 4, 203, 391, 456, 666 and 700 from the server, and a variety of combinations of parts from the others; he could be downloading nothing at all from the server, etc. It's all intelligent, actually. If, say, A's connection with C were the fastest, A would end up downloading most of the file from C.

So There's Still One Server?

Not really. The BitTorrent (BT) network functions in quite a different way. There really is no way to distinguish one peer from another, so there's no server-client relationship. Everyone is equal in BT land. The only distinction there is, which is related to the server-client relationship of HTTP, is *Seeds* and *Peers*. A Seed is a computer on the BT network that has the full file, and is still uploading it for those who want it; a Peer is a computer that's both downloading and uploading the same file. So let's say you make your own Linux Distro. Initially, you will be the only seed, and those downloading from you will be peers. Let's say that in an hour or two, three users have finished downloading your distro, and are still connected to the network—these three will also become seeds. In fact, you could even go offline; if at least one of those three (who finished downloading the file) stay online till someone else also finishes and becomes a seed, the file will continue to propagate across the Net. As long as people wait for more Peers to become Seeds before disconnecting, the file transfers never die.

Unlike Web protocols, where more users online slow down the experience for everyone, BT networks thrive on popularity. So if there are millions of seeds and peers for one file, the faster you will be able to download it.

How Do Peers Share Files?

You need a BitTorrent Client—a program that uploads and downloads using the BT network. If you wanted to distribute a file X, you would have to make a Torrent file. What the software does is look at the file or folder that you're sharing, calculate size (for files) and the number of files (for folders), and then break the data into equally-sized, manageable chunks (or bits). It then stores all this information, including your IP address, in a file called the Torrent file. If you want to share file X with your friends, you just need to send them the Torrent file, which their BT clients will interpret—and start downloading the file (or folder) from you.

So It's All Just Private Sharing?

Not at all—otherwise BitTorrent wouldn't be as popular as it is. All it takes to share something—using BT—with the world is to give the world the Torrent file; this is easily achieved using Web protocols to host the Torrent files from millions of users on a site where they can all search for and download them. Now when you're dealing with a million peers downloading a specific file, the number of people who complete downloading and are now uploading (becoming seeds) will change dramatically. This is where the "Tracker" comes into the picture in a BT network. A tracker is just an application that monitors the current status of seeds and peers downloading a particular torrent.

To make a torrent file, you go to `File > New`—or the equivalent of that action—in your BT client. While making your file, you will notice that most clients, by default, offer to make the torrent "Trackerless" using the public DHT (Distributed Hash Table) network. This means that all the peers downloading that torrent will have and update the information about all the other peers and seeds. When you choose to use trackers, the DHT network is disabled. This means that those downloading the torrent connect to the tracker the first time and get information about the seeds and peers for that torrent file. The tracker usually updates itself at regular intervals. Private trackers are generally used by closed groups of file sharers, and apart from monitoring download progress and the amount of seeds and peers, they also monitor Share Ratios.

Share Ratios?

Most of the older P2P networks died because of one main reason—leechers, a.k.a. P2P vermin. The older protocols had one major flaw: they didn't force people to upload. Let's take the file X example again: you start sharing the file, people connect, they download, and once they're done, they disconnect. This results in file X not being shared with the world unless you're online and sharing it. If there was some way in which you could force all those downloading to upload at least as much as they download, you could make the P2P world a better place. Bram Cohen had exactly this in mind when he designed BitTorrent: he introduced the concept of "Share Ratio" into BT, which, simply put, is the ratio of the amount of data you've uploaded to the amount you've downloaded. And so you have two share ratios: one for each specific Torrent task, and one total of all your BT participation. The BT network also

gives preference to those with share ratios of 1 and over (uploaded as much or more than downloaded)—meaning you get better speeds. This is usually taken care of at the tracker, so when using a private trackers, keep your share ratio in mind, unless you want to get banned from the group. (You usually get to use a private tracker after signing up at a torrent site.)

Ever since BitTorrent became the weapon of choice for P2Pers, the term Share Ratio determines what people think of you. It's actually considered rude to have a share ratio of anything less than 1, and the terms "Leech" and "Hit and run" are used as insults for those with 0.something share ratios.

The Legality

As we mentioned earlier, the BitTorrent network accounts for the majority of Earth's Internet Traffic, and over half of the world's P2P traffic. Unfortunately, the majority of this traffic is illegal downloading of pirated content. Currently, the BT network is most popular for illegal music, movies and software, and pornography accounts for a rather large chunk of the sharing. Often, users think the BT network is anonymous, and that they're safe when downloading pirated content. Nothing could be further from the truth, because the BT protocol is transparent and it's easy for anyone to see who is uploading and downloading any given torrent—IP addresses of the seeds and peers are plainly visible. If the authorities decide to persecute, it's very easy for them to tell which IPs are illegally downloading copyrighted content, and just as easily to trace the IP to your house.

Private Vs. Public Trackers

A common misconception is that if you want to download something pirated, you should use a private tracker. People think that since private trackers need authentication, and are usually very closed groups that share the latest pirated content, they're safe. Wrong! Anti-piracy organisations could target any group, and honestly, it's not really hard to pretend to be someone else on the Internet. Users of private trackers are generally considered a worse threat by organisations such as the RIAA (Recording Industry Association of America) and MPAA (Motion Picture Association of America), and others. This is because most users in private groups don't just download torrents, but also rip CDs and DVDs and post new torrents as well. Think of it like organised crime, where every

BitTorrent: File Sharing



In the illustration above, User A has the complete file (Pizza), C and D are downloading and B has just joined the swarm. Data being sent from one user to another is depicted as the delivery boys. B is downloading from everyone, A is seeding to everyone and C and D are both uploading to each other and B and downloading from each other and A. All users contact the tracker to inform it of their existence and progress when they start uploading / downloading, and periodically as well to find more users downloading and uploading the same file

member is an active participant in the crime. So the misconception that using *public* trackers is unsafe is completely unfounded, because using private trackers is just as risky. Perhaps the best place to hide really is in a crowd!

What we're trying to say here is that although you can find anything using the BT network, it's not wise to use it to download pirated content—our government has started tracking down and taking action against the pirates, and you never know who'll be next.

Why Not Stop BT?

Unlike other P2P networks, however, BitTorrent cannot be blamed for the way the technology is being used, so there's very little chance that the protocol will die—it's just a protocol, and there's no one governing body that controls what is on the network (much like there's no one organisation that governs the Internet).

The BitTorrent network is used for a lot of legal downloads as well, and most open source developers release large software files on the BT network to save themselves bandwidth costs in terms of HTTP servers. Linux distros are perfect examples of this. It's not just software; creators of free audio and video projects are also releasing their work over the BT network—so you can legally download movies, music and more for free using BitTorrent, too.

Malicious Content

P2P networks are often associated with malicious content, and this was another reason for BitTorrent's birth. Because you mostly find torrent files on Web sites that host them, it's easy to read feedback provided by previous users who downloaded the file and gauge whether the file is indeed what it claims to be. Sometimes, due to errors during file creation, you might receive a bad file. This writer once got a corrupted Ubuntu CD ISO file from the BT network, all because some peer had a corrupted segment of the file. These occurrences are rare, though, and can even be prevented (see box *PeerGuardian*). This writer also remembers downloading what was supposedly "freeware" from earlier networks such as KaZaA, and getting viruses instead. In fact, people using earlier networks would cross their fingers when downloading something, hoping that the file was what it claimed to be—with instances of people trying to download *My Fair Lady* and ending up with pornography, and so on.

Thankfully, when using the BT network, you can just go back to the site you downloaded the file from and leave a comment to prevent others from being duped. In fact, you will almost always find comments from users for almost every torrent downloaded. Those who download pirated content find it easy to gauge the authenticity of the download by looking at the number of seeds and peers for that file—the larger the swarm, the higher the probability that the content is what it claims to be.

Clients And Sites

In order to use the BitTorrent network, you need to have a BT client, and you can get the original BitTorrent client from **www.bittorrent.com**. However, if you want more advanced torrent clients, there are: BitComet (**www.bitcomet.com**), Azureus (**http://azureus.sourceforge.net**), and µTorrent (**www.utorrent.com**).

In order to download torrent files and legal content, you need to check out the BitTorrent home page at **www.bittorrent.com** and Legal Torrents at **www.legaltorrents.com**. Most other places on the Web will have both legal and illegal downloads listed, and you might find it hard to distinguish between the two. They're not hard to find, though, and Google searches for torrents will almost always point you to such sites. Remember, you've been warned, so be extra careful when downloading content from any P2P network, or you could unwittingly break the law. You should also be careful if you have youngsters in your household, because a lot of torrent sites are supported by advertising from the pornographic industry, and are obviously not fit for use on family computers. For the same reason, you should resist the temptation to access these sites from your office as well—you could get your company in troubli too.

If you have broadband, you're going to love the speeds of the downloads that the BT network offers. (Those of you on limited data transfer plans should remember that *both* upload and download data counts in the final tally). Enjoy your BT experience! ☒

robert_smith@thinkdigit.com

PeerGuardian

PeerGuardian and PeerGuardian 2 are applications made by Phoenix Labs (**www.phoenixlabs.org**) that can stop your computer from connecting to banned IPs. Usually, IPs that are known to be sending out malicious data, junk data, etc., are logged to an IP Blocklist, and this is updated on a server. When you have PeerGuardian running on your computer, it updates itself with this Blocklist and stops you, or any applications running on your computer, from connecting to this list of banned IPs.

When it comes to the BitTorrent network, PeerGuardian helps by filtering out peers who are uploading junk data for popular files. Unfortunately, most popular files are pirated content, and the rumours floating about on the Net suggest that organisations such as the MPAA and RIAA are using the technique of sending out junk data disguised as legitimate parts of popular torrents to corrupt the files that downloading peers get, or flood the network so that it takes much longer for the file to completely download. This happens because torrent clients do an immediate hash check for each part of the file they download. If the file chunk is filled with bad data, the part is discarded and re-downloaded from another source. This is why a lot of people have started complaining about receiving a lot of junk data and taking days to complete even small downloads.

By blocking such IPs, PeerGuardian seems to be helping piracy. However, it also allows you to prevent your computer from connecting to adware-serving hosts, spyware servers, US government IPs (so they don't set out to get you, in case they're looking) and even educational institutions (where a lot of script kiddies sit and use college resources to try and hack PCs across the globe). This software will also help you avoid junk data on the torrent network when downloading legal torrents. We're forced to accept the bad with the good and recommend it. Remember that the blocks are computer-wide, and not just limited to your torrent client, but all protocols and ports.

The Hand That Rocks The Rig

While DX 10 cards have been here for a while where are all the DX 10 games? Another topic for another time...for now here are the latest—and greatest—graphics cards available today. We'll help you pick the right one too!

Michael Browne

Lets face it... DX 10 isn't going to be any sort of gaming platform—and this, directly from Microsoft's mouth! All DX 10 was supposed to be was a platform for Windows Vista and that gorgeous Aero. It seems DX 10.1 will be the gaming platform, and knowing Microsoft we may see a DX 10.1b or even a DX 11 before game developers switch over from good old DX 9.

We have seen a couple of DX 10 titles but they've been so horribly optimised that even the fastest DX 10 cards slow to a crawl—a slideshow, if you will. Visually, there hasn't been anything radical—but this is natural since game development takes anywhere between two and five years, and simply recoding a DX 9 title for DX 10 doesn't seem to do much in the way of visual realism.

So where does this leave most of today's graphics cards? Well, not out in the cold for sure... simply because all the newest DX 10 cards just happen to make terrific gaming platforms for all DX 9 games. The fact that they were equipped with loads of shader units for effect-intensive DX 10 means they have all the horsepower to deliver blistering frames with all the eye candy enabled on DX 9.

We dug around the market for a while, and unearthed 55 of the most interesting cards for test, after rejecting numerous cards spread across many a variety of GPU cores. We were looking for three categories of chipsets:

- Those that *performed*, par none.
- Those that perform well enough, and due to their excellent pricing, make terrific value-for-money purchases.
- Those chipsets that deliver outstanding value for those of our readers interested in HTPCs, multimedia PCs and general computing boxes.



Imaging **Shrikrishna Patkar**
Photograph **Sandeep Patil**

HIGH-END CHIPSETS: BLEEDING-EDGE REALISM REDEFINED!

Thanks to the hype DX 10 created, we've seen a lot more pixel-crunching power on the new breed of cards. Both NVIDIA's 8800 and ATI's HD2900 series GPUs are much faster than their predecessors—thanks to an insane jump in the number of shader units.

These cards just chew up the latest DX 9 games and swallow them without a hiccup! Gone are the days when AntiAliasing used to cause stuttering in frames—the 8800GTX and HD2900XT will handle Anisotropic Filtering and AntiAliasing with a hit of anywhere between 5 and 15 frames even at high resolutions. This bespeaks tremendous improvements in the overall architecture and FSAA algorithms. Needless to say, both these cards will handle all the upcoming titles with ease. And you won't need to tone down settings for some time to come.



Asus EN8800GTX Aquatank
Tanking its way to gaming glory!

The Contenders

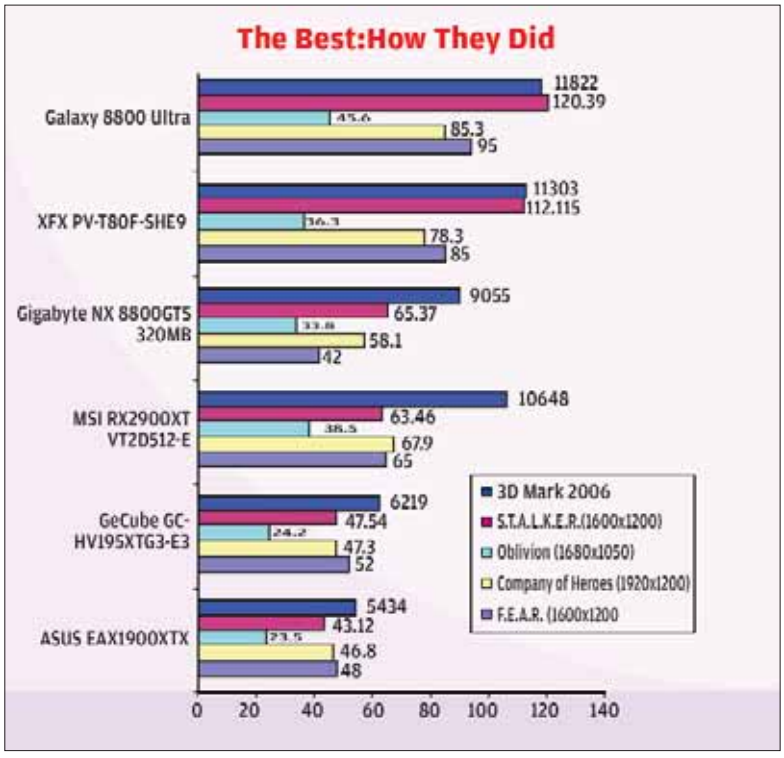
As they say, *it's lonely at the top*. ATI's HD2900XT is still a very new chipset, and we were only able to get a single card from one vendor—MSI. The MSI RX2900XT VT2D512-E comes with all the connectors you'll likely need. A DVI to HDMI adapter is provided—very important for HD junkies who will likely pair this card with a large screen LCD or Plasma screen. Incidentally, the HD2900XT chipset also has an audio solution integrated (HDMI supports video and audio signals on a single connect). There's also a token bundled that'll get you three upcoming Valve Software game titles, when they release of course... This card is also phenomenally heavy; we estimate it to be at least 200 grams more than the 8800GTX/Ultra (the next-heaviest card). This is because of the generous use of copper in the cooling solution, and three copper heat pipes.

NVIDIA had a slightly better showing with one 8800 Ultra from Galaxy and three 8800 GTX cards—two from ASUS and one from XFX. ASUS' 8800GTX Aquatank was something special—it features a liquid cooling solution and is completely set up to go with water block, pump and radiator. Since liquid cooling is thermally more efficient, ASUS overclocked this card to beyond 8800 Ultra levels. The radiator is well designed and looks like any other card—it'll occupy an extra PCI slot. The other three cards used reference NVIDIA coolers.

There were seven GeForce 8800GTS-based cards in our test—all on reference coolers. Note that the 8800GTS is a lower version of the 8800GTX architecture with slower core and memory speeds, less memory bus-width and shader units. It's also a shorter card—the PCB (Printed Circuit Board) being 1.5 inches shorter than the PCB of the 8800GTX/Ultra cards. Most of the vendors are generous, and the games bundled are some of the newer titles—especial-

Parameters	8800 Ultra	8800GTS	HD2900XT	X1950XTX	X1900XTX
No. Of Transistors (million)	681	681	700	384	384
Core Speed (MHz)	612	500	740	650	650
Number of Shader Units	128	96	320	48(PS)+8(VS)*	48(PS)+8(VS)*
Memory Bandwidth (GBps)	103.2	64	106	51.2	48

*PS= Pixel Shader, VS= Vertex Shader



ly games like *Company of Heroes*, *Lost Planet* and *GRAW*, bundled with MSI and XFX 8800GTS cards respectively.

ASUS had several ATI-based X1950 and X1900 series cards—four to be exact. MSI had three and GeCube had two. GeCube has a slightly different cooler design with a complete backplate on both their cards. Throughout the test, we noticed these cards running cooler than other cards based on the same core. We concluded the backplate dissipates some of the heat as well. In fact, although the X1900XTX and X1950XTX cards share the same core (R580), the X1950XTX series come with GDDR4 memory as opposed to GDDR3. This isn't as good as we expected it to be—probably due to the latencies involved in GDDR4 memory.

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Galaxy 8800 ULTRA
The numero uno pixel cruncher!

How They Performed

We were surprised to see, in reality, the jump in performance over the previous-generation hardware we tested last year. Especially NVIDIA—their 8800GTX GPU seems to eat each and every game for breakfast...

Games like *S.T.A.L.K.E.R.* are very taxing once the settings are cranked up, but these cards didn't even break stride. As expected, the 8800GTS core-based cards place behind the 8800GTX and Ultra chipset-based cards. ATI's HD2900XT is targeted squarely at the 8800GTS and does a good job keeping up with it—even managing to sneak ahead at times. Last year's fire-breathers—the X1950/X1900 series—don't even come close to snapping at the heels of any of the latest generation cards, let alone dethroning them. One look at the graph on the previous page will prove beyond any doubt the utter supremacy of the G80 a.k.a. GeForce 8800GTX/Ultra throughout the benchmarks. Moreover, these cards don't seem to take a large performance hit no matter how high the settings and resolution. Only *Oblivion* shows signs of getting these monsters all sweaty, proving the superb scaling capabilities of Bethesda Software's gorgeous-looking game engine. A closer look shows another little tussle ensuing between the 8800GTS-based cards and the MSI RXHD2900XT. The older X1900 and X1950-based chipsets do not really compare with the faster DX 10 cores, but then they aren't exactly meant to.

Pick One!

What a surprise... high-end cards available at a price point of just under 10,000 rupees! For example, the price of the ASUS EAX1900XTX was around Rs 30,000 around the time of last years test—this year it's a third of that. The fact remains that cards based on these chipsets are outdated both in terms of performance on DX 9 and support for DX 10. However, with proper DX 10 titles some time away from markets you could have a superb DX 9 gaming platform at your disposal. These cards are definitely faster than the newest DX 10 mid-range

How We Tested

We segregated all the contestants on the basis of their chipsets i.e. the GPU. Our High-End category consisted of NVIDIA's GeForce 8800 and 7800/7900 series, and ATI's Radeon HD2900 and X1900/X1950/X1800 series of chipsets. Cards based on these chipsets give you the best performance possible—while not necessarily being wallet-friendly. The most future-proof cards are likely present here.

The Mid-Range consisted of NVIDIA's GeForce 8600/8500/7600 series of chipsets and ATI's Radeon HD 2600/X1600 series. Cards based on these chipsets represent excellent value for money—and are a must for any sort of HTPC. Some of the higher chipsets also make decent gaming platforms capable of taking on the latest games with relative ease.

Our Entry-Level segment consisted of NVIDIA's GeForce 8400/7300 and ATI's Radeon HD2300/X1300 series of chipsets. These represent extreme value but not necessarily value for money. Not suitable for gaming, these cards are essential for a good HTPC.

Our Test Rig

Processor: Intel Core 2 Duo X6800 cooled by CoolerMaster AquaGate S1
Motherboard: ASUS Commando
Memory: 2 x 1 GB Corsair Dominator PC8500 1066 MHz (5-5-5-15)
HDD: 2x Western Digital Raptor 74 GB (10,000 rpm)
Power Supply: Tagan 900W
Operating System: Windows XP SP 2
NVIDIA driver version: 162.18
ATI Catalyst version: 7.8

The Tests

We used the highest quality / highest resolution settings for the High-end cards, while toning down both for the Mid-range cards. The Entry-level cards were tested with lower resolutions, while exacting settings like AntiAliasing were kept at a minimum.

REAL-WORLD: DIRECTX-BASED

F.E.A.R: A Superb 3D engine, amazing particle effects and realistic damage models along with suitable terrain deformation. F.E.A.R.'s combat sequences are some of the most realistic you'll encounter. Needless to say, it stresses out all but the most powerful of cards.

S.T.A.L.K.E.R. Shadow of Chernobyl: Based on GSC Gameworld's X-Ray engine, this game depicts an ultra-realistic post nuclear fallout world. Some great visuals, great attention to detail as far as weapon and architectural modelling go. S.T.A.L.K.E.R. redefines immersive realism, and is one of the newest games we've benchmarked.

The Elder Scrolls 4: Oblivion: With a massive world to explore, Oblivion features beautiful environments with plants, vegetation and foliage that are life-like. It is a very pixel shader intensive, and

Decision Maker

You Want	Suggested Chipset(s)	We Recommend
The best gaming card, price no bar	8800GTX / Ultra	Galaxy 8800Ultra, XFX PV-T80F-SHE9
A powerful DX 10 card; budget under Rs 25,000	8800GTS	MSI NX8800GTS 320
A good gaming card; budget Rs 15,000	X1900XTX, X1950XTX	ASUS EAX1900XTX, GeCube GC-HV195XTG3-E3
The best value for money card; budget Rs 10,000	8600GT/GTS	ASUS EN8600GT, Foxconn 8600GTS
A cheap gaming solution; budget Rs 5,000	8500GT	Sparkle 8500GT 256 MB
An HTPC / Multimedia PC solution, budget Rs 2,000 to 3,000	8400GS	Sparkle GF PCX-8400GS 256 MB, Galaxy 8400GS

offerings—meaning if one removes the DX 10 equation from the picture the X1900/X1950 cards offer terrific value for money at their current prices.

If you want something powerful enough for all DX 9 games at decent settings and resolutions, and if you're on a frugal budget, we suggest ASUS' EAX1900XTX, at Rs 9,900. Just remember you aren't DX 10 ready with this one...

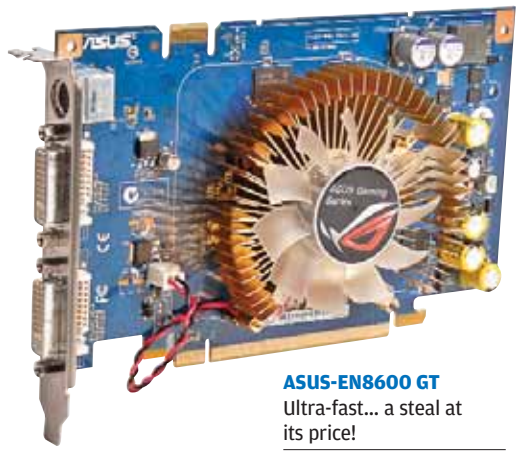
This time there's no reward for second place... Why? Well, there are two winners. With a fraction of a point between them, ASUS' EN8800GTX Aquatank and Galaxy's 8800 Ultra share our Best Buy Gold award. In you're looking for the most powerful card out there, and cash happens to be bountiful, go for Galaxy's 8800 Ultra. Just make sure you have a *good* 500-watt power supply, else your gaming rig will go up in smoke! Although ASUS' EN8800GTX Aquatank is definitely fast, it's also super-expensive, and very difficult to find. Unless you specifically want liquid cooling—we don't see why you would—we suggest you stick with the Galaxy 8800Ultra, or save a bit and go for XFX's PV-T80F-SHE9 (their 8800GTX solution).

There's another angle to consider—DX10.1 on the horizon means the GeForce 8800GTX may not remain a top-end solution for very long. As we've mentioned earlier, we don't really see DX10 and its successors taking over from DX9 anytime soon. Assuming you want something cheaper, check out the NVIDIA 8800GTS chipset based cards—we recommend the 640 MB versions. MSI's HD2900XT also makes a potent gaming solution and is a little faster than the 8800GTS (and should be more future-proof too). Once again, you'll need a good power supply.

MID-RANGE CHIPSETS: EXCEPTIONAL VALUE PERFORMERS!

This is one hot category! The mid-range has always represented the perfect unity of value and performance. Irrespective of which of the two variables you are more inclined towards,

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ASUS-EN8600 GT
Ultra-fast... a steal at its price!

at higher resolutions will cause all available cards to stutter. This game rewards lots of shader units, memory bandwidth and quantity.

Company of Heroes: As an RTS, *Company of Heroes* is a delightful-looking game. What is shocking is that it looks even better up close—as good as any third person shooter around. Weapon detailing, damage effects, and squad and vehicle animations are absolutely top-notch.

Splinter Cell: Chaos Theory: Featuring ultra-realistic lighting and shadow detailing as well as incredibly well rendered locales, *Chaos Theory* is one of the oldest games in this test. It nonetheless still has what it takes to bring the latest cards to their knees. This game exemplifies what DX 9 and SM 3 are really capable of.

Far Cry: With huge outdoor levels, complete with the Pixel Shading goodness that brings the environments in the game to life Far Cry set the benchmark for the way games should look and play way back in 2004. Three years down the line, *Far Cry* is still a very good looking game.

REAL-WORLD: OPENGL-BASED

Serious Sam 2: Like its predecessor, Serious Sam 2 features sprawling outdoor levels, with tons of bad guys to shoot at. Although this engine is largely CPU-bound, it still makes a very good test for the slower mid-range and entry-level solutions.

Prey: Based on a heavily modified and optimised *Doom 3* engine, *Prey* is significantly heavier on system resources than its ancestor was. Level design is excellent, and with great use of lighting and physics, not to mention superb gameplay, *Prey* is a definite must for gamers and benchmarks alike.

Doom 3: The only other "old" game apart from *Far Cry*, *Doom 3* nonetheless still has what it takes to mash the lower-end crop of cards. The fact that the engine is so sensitive to even minor changes in hardware makes it the perfect engine for benchmarking. The engine still has one of the best implementation of shadows we've seen—and level design is superbly scary and unbelievably claustrophobic.

SYNTHETIC BENCHMARKS

3D Mark 2006 Professional: An industry-standard reference for Shader performance. 3D Mark is very taxing for entry level cards though most of the mid-range DX 10 cards can handle it easily.

3D Mark 2005: An older standard than 3D Mark 2006, this benchmark is nonetheless an industry standard, and proves the first challenge for entry-level cards, sort of like the beginners' difficulty level in a game.

Scoreboard — High-end Graphics cards

BRAND MODEL	Galaxy 8800 Ultra	ASUS EN8800GTX Aquatank	ASUS EN8800GTX	XFX PV-T80F-SHE9	ASUS EN8800GTS 320
Chipset	GF 8800 Ultra	GF 8800GTX	GF 8800GTX	GF 8800GTX	GF 8800GTS
					
Price (Exclusive of Taxes)	Rs 35,000	Rs 45,000	Rs 39,480	Rs 35,400	Rs 21,480
Comments	+ Sheer perfomance – Skimpy bundle	+ Cooling, Performance – Very expensive	+ Superb performance – Very expensive	+ Superb performance – Skimpy bundle	+ Good bundle – Pricey
Grand Total (Out Of 100)	82.30	82.31	78.67	79.12	64.87
Features (Out Of 12)	5.76	7.20	6.72	6.72	6.72
Performance (Out Of 83)	75.20	74.07	70.76	71.07	55.96
Price (Out Of 5)	1.34	1.04	1.19	1.33	2.19
Features					
Accessories / Connector Bundle	Composite to S-Video connector, S-Video Cable, Molex to 4-pin power adapter, DVI connectors	Composite to S-Video connector, S-Video cable, Molex to 4-pin power adapter, DVI connectors	Composite to S-Video connector, S-Video cable, Molex to 4-pin power adapter, DVI connectors	Composite to S-Video connector, S-Video Cable, Molex to 4-pin power adapter, DVI connectors	Composite to S-Video connector, S-Video Cable, Molex to 4-pin power adapter, DVI connectors
Software / Game Bundle	NA	Ghost Recon, GTI Racing, 3D Mark 2006	Ghost Recon	NA	Race, GRAW, 3D Mark 2006
Video Memory / Type	768 MB / GDDR3	768 MB / GDDR3	768 MB / GDDR3	768 MB / GDDR3	320 MB / GDDR3
Performance					
Real-world (Direct 3D Tests)					
F.E.A.R.					
1280x960 (4x AA, 4x AF, SS On, Max Detail)	130	131	121	120	79
1600x1200 (4x AA, 8x AF, SS On, Max Detail)	95	90	83	85	45
Splinter Cell: Chaos Theory					
1280x1024 (No AA, 4x AF, Max Det, S.S On)	172.7	172.8	155.6	158.9	113.4
1600x1200 (4x AA, 8x AF, Max Det, S.S On)	130.4	131.3	116.9	120.7	84.83
Far Cry					
1600x1200 (4x AA, 8x AF, Ultra Detail)	139.33	143.81	138.31	137.63	114.11
1920x1200 (4x AA, 8x AF, Ultra Detail)	140.73	140.13	130.79	133.98	92.64
Company Of Heroes					
1600x1200 (4x AF, No AA, High Detail)	109	113.5	102.4	100.8	60
1920x1200 (4xAF, 4x AA, Max Detail)	85.3	82.2	76	78.3	44.3
Oblivion					
1280x1024 (4x AF, No AA, Max Detail, HDR)	66.4	62.4	62.4	63.2	51.4
1680x1050 (4xAF, No AA, Max Detail, HDR)	45.6	41.5	41.6	36.3	34.5
S.T.A.L.K.E.R.					
1600x1200 (4x AF, 4x AA, Max Detail)	120.39	119.73	110.07	112.115	76.38
1920x1200 (4xAF, 4x AA, Max Detail)	103.23	101.3	93.85	95.83	66.9
Real-world (OpenGL Tests)					
Doom 3					
1280x1024 (4x AA, 4x AF, Max Detail)	175.8	171.9	162.5	163.1	115.1
1600x1200 (4x AA, 8x AF, Max Detail)	136.2	132.7	123.4	124.4	84.9
Prey					
1600x1200 (4x AA, 8x AF, Max Detail, Max Shaders)	112.9	115.3	106.7	105.4	73.6
1920x1200 (4x AA, 8x AF, Max Detail, Max Shaders)	99.5	95.7	91.1	91.1	64.9
Serious Sam 2					
1600x1200 (4x AA, 4x AF, Max detail, Max Shaders)	109.8	112.5	111.4	115.2	110.8
1920x1200 (4x AA, 8x AF, Max Detail, Max Shaders)	111.3	111.3	111.5	112.3	109.2
Synthetic Tests					
3D Mark 2006 (Default settings)	11822	11489	11135	11303	9077
3D Mark 2005 (Default settings)	17390	17179	16998	17112	15621
Visual Quality Tests					
Oblivion (Scale Of 10)	9	9	9	9	9
S.T.A.L.K.E.R (Scale Of 10)	9	9	9	9	8.75
Company of Heroes (Scale Of 10)	9	9	9	9	9
F.E.A.R. (Scale Of 10)	9	9	9	9	9

High-end Graphics cards

	ASUS EN8800GTS 640	Gigabyte GV-NX88S320H-B-RH	MSI NX8800GTS-T2D320E	Point of View POV 8800GTS	XFX PV-T80G-GHF9	XFX PV-T80G-THF9
	GF 8800GTS	GF 8800GTS	GF 8800GTS	GF8800GTS	GF 8800GTS	GF 8800GTS
						
	Rs 29,310	Rs 23,990	Rs 18,000	Rs 24,000	Rs 18,500	Rs 25,000
	+ Good bundle − Expensive	+ Good bundle − Somewhat expensive	+ Very well priced − None in particular	+ DX 10 ready − Lower performance than stock	+ Reasonably priced − None in particular	+ Decent bundle − None in particular
	65.51	63.68	67.16	54.61	66.36	66.03
	6.72	6.72	6.72	5.28	6.72	6.72
	57.19	55.00	57.83	47.37	57.10	57.43
	1.60	1.96	2.61	1.96	2.54	1.88
	Composite to S-Video connector, S-Video Cable, Molex to 4-pin power adapter, DVI connectors	Composite to S-Video connector, S-Video Cable, Molex to 4-pin power adapter, DVI connectors	Composite to S-Video connector, S-Video Cable, Molex to 4-pin power adapter, DVI connectors	Composite to S-Video connector, S-Video Cable, Molex to 4-pin power adapter, DVI connectors	Composite to S-Video connector, S-Video Cable, Molex to 4-pin power adapter, DVI connectors	Composite to S-Video connector, S-Video Cable, Molex to 4-pin power adapter, DVI connectors
	GT Racing, GRAW, 3D Mark 2006	Dark Crusade	Company of Heroes	NA	Lost Planet	GRAW
	640 MB / GDDR3	320 MB / GDDR3	640 MB / GDDR3	640 MB / GDDR3	320 MB / GDDR3	640 MB / GDDR3
	86	71	86	79	85	85
	59	42	48	52	57	60
	95.58	105.4	121.8	100.2	118.44	111.1
	60.75	79.97	90.74	74.16	88.43	82.85
	113.84	111.02	114.3	54.92	111.52	112.51
	100.3	92.64	100.2	52.52	96.43	99.35
	73.7	39.7	68.3	61.3	65.32	65.9
	53.9	58.1	45.8	50.7	51.2	53.2
	52.4	51.3	51.6	48.6	51	51.4
	35.3	33.8	33.2	34.1	35.2	35.1
	81.87	65.37	87.42	42.5	76.4	77.9
	69.56	66.74	43.54	36.77	62.6	66.07
	118.6	112.3	117.2	107.8	114.4	116.7
	87.4	84.9	87.6	79.5	83.4	86.7
	76.5	73.8	81.4	61.9	73.2	75.4
	65.1	64.8	71.7	55.7	64.8	65.3
	112.9	111.5	113.6	60.9	114.2	113.2
	109.8	109.4	112.3	60.6	111.6	111.4
	9157	9055	9795	7276	9051	9090
	15713	15614	16355	13737	15625	15634
	9	9	9	9	9	9
	8.75	8.75	8.75	8.75	8.75	8.75
	9	9	9	9	9	9
	9	9	9	9	9	9

Scoreboard — High-end Graphics cards

BRAND MODEL	MSI RX2900XT VT2D512-E	ASUS EAX1950XTX	ASUS EAX1900XTX	ASUS EAX1900 Crossfire
Chipset	Radeon HD2900XT	Radeon X1950XTX	Radeon X1900XTX	Radeon X1900XT
				
Price (Exclusive of Taxes)	Rs 26,200	Rs 11,500	Rs 9,900	Rs 10,350
Comments	+ Very powerful – Lacking in game support	+ Good cooling solution – None in particular	+ Excellent value now – Gets hot	+ Good value for money – Lower performer
Grand Total (Out Of 100)	66.81	52.31	53.53	52.15
Features (Out Of 12)	7.44	7.20	7.20	7.20
Performance (Out Of 83)	57.57	41.02	41.58	40.41
Price (Out Of 5)	1.79	4.09	4.75	4.54
Features				
Accessories / Connector Bundle	Composite to S-Video connector, S-Video Cable, Molex to 4-pin power adapter, DVI connectors, DVI to HDMI converter	Composite to S-Video connector, S-Video Cable, Molex to 4-pin power adapter, DVI connectors	Composite to S-Video connector, S-Video Cable, Molex to 4-pin power adapter, DVI connectors	Composite to S-Video connector, S-Video Cable, Molex to 4-pin power adapter, DVI connectors, gamepad
Software / Game Bundle	The Black Box (3 Free Valve games), MSI Beyond 3D	GRAW and Project Snow Blind	King Kong, Project Snowblind, Virtual Show, PowerDirector 3DE	King Kong, Media Show, Project Snowblind, Power Director 3D
Video Memory / Type	512 MB / GDDR3	512 MB / GDDR4	512 MB/ GDDR3	512 MB / GDDR3
Performance				
Real-world (Direct 3D Tests)				
F.E.A.R.				
1280x960 (4x AA, 4x AF, SS On, Max Detail)	87	74	71	69
1600x1200 (4x AA, 8x AF, SS On, Max Detail)	65	49	48	45
Splinter Cell: Chaos Theory				
1280x1024 (No AA, 4x AF, Max Det, SS On)	136.5	75.83	73	69.54
1600x1200 (4x AA, 8x AF, Max Det, SS On)	92.5	56.29	54.74	51.47
Far Cry				
1600x1200 (4x AA, 8x AF, Ultra Detail)	69.36	59.49	85.64	81.45
1920x1200 (4x AA, 8x AF, Ultra Detail)	60.56	57	75.63	71.93
Company Of Heroes				
1600x1200 (4x AF, No AA, High Detail)	87.7	55.3	55.3	54.2
1920x1200 (4xAF, 4x AA, Max Detail)	67.9	46.9	46.8	41.5
Oblivion				
1280x1024 (4x AF, No AA, Max Detail, HDR)	59.5	48.6	44.9	48.5
1680x1050 (4xAF, No AA, Max Detail, HDR)	38.5	22.4	23.5	22.4
S.T.A.L.K.E.R.				
1600x1200 (4x AF, 4x AA, Max Detail)	63.46	45.38	43.12	40.72
1920x1200 (4xAF, 4x AA, Max Detail)	56.9	38.69	36.3	33.83
Real-world (OpenGL Tests)				
Doom 3				
1280x1024 (4x AA, 4x AF, Max Detail)	129.4	88.7	76.5	71.4
1600x1200 (4x AA, 8x AF, Max Detail)	107.8	65.5	54.2	50.8
Prey				
1600x1200 (4x AA, 8x AF, Max Detail, Max Shaders)	68.7	53	47.5	44.7
1920x1200 (4x AA, 8x AF, Max Detail, Max Shaders)	61.1	47.8	41.6	40.5
Serious Sam 2				
1600x1200 (4x AA, 4x AF, Max detail, Max Shaders)	65.4	63.7	65.7	63.7
1920x1200 (4x AA, 8x AF, Max Detail, Max Shaders)	58.1	58.2	62.5	60.7
Synthetic Tests				
3D Mark 2006 (Default settings)	10648	4863	5434	5256
3D Mark 2005 (Default settings)	16500	9377	10915	10865
Visual Quality Tests				
Oblivion (Scale Of 10)	9.25	9	9	9
S.T.A.L.K.E.R. (Scale Of 10)	9	8.75	8.75	8.75
Company of Heroes (Scale Of 10)	9	9	9	9
F.E.A.R. (Scale Of 10)	9	9	9	9

High-end Graphics cards

	ASUS EAX 1950 Crossfire	GeCube GC-HV195XTG3-E3	GeCube GC-HV195PC3-E3	MSI RX1900XT VT2D512E	MSI RX1900GT-VT2D256E	MSI RX1950 Pro
	Radeon X1950XT	Radeon X1950XTX	Radeon X1950 Pro	Radeon X1900XT	Radeon X1900GT	Radeon X1950 Pro
						
	Rs 10,950	Rs 14,000	Rs 12,500	Rs 12,000	Rs 13,000	Rs 12,600
	+ Affordable DX 9 solution – Faster memory doesn't help	+ Good performance – Skimpy bundle	+ Good value for money – Not future-proof	+ Good Bundle – Slightly expensive	+ Decent Bundle – Low on video RAM	+ Good Bundle – Slightly Expensive
	51.35	52.59	47.37	55.63	45.39	47.78
	6.72	4.56	5.28	6.72	6.72	6.72
	40.34	44.67	38.33	45.00	35.06	37.33
	4.29	3.36	3.76	3.92	3.62	3.73
	Composite to S-Video connector, S-Video Cable, Molex to 4-pin power adapter, DVI connectors	Composite to S-Video connector, S-Video Cable, Molex to 4-pin power adapter, DVI connectors	Composite to S-Video connector, S-Video Cable, Molex to 4-pin power adapter, DVI connectors	Composite to S-Video connector, S-Video Cable, Molex to 4-pin power adapter, DVI connectors	Composite to S-Video connector, S-Video Cable, Molex to 4-pin power adapter, DVI connectors	Composite to S-Video connector, S-Video Cable, Molex to 4-pin power adapter, DVI connectors
	Project Snowblind, GRAW	NA	NA	GT Legends, Star DVD Family	King Kong, MSI Beyond 3D, Star DVD Family	Toca Race Driver 3, Star DVD Family, MSI Beyond 3D
	512 MB / GDDR4	512 MB / GDDR4	512 MB / GDDR3	512 MB / GDDR3	256 MB / GDDR3	256 MB / GDDR3
	72	76	58	81	54	56
	45	52	39	58	35	38
	71.47	78.73	61.02	84.14	56.14	62.01
	53.68	60.72	46.24	60.15	42.35	44.67
	56.83	90.35	73.99	89.16	64.54	72.61
	54.61	78.61	64.58	78.3	55.98	60.63
	54.7	56.2	42.3	59.54	38.5	44.5
	44.8	47.3	35.3	50.4	29.1	34.9
	46.5	47.3	45.3	44.1	39.4	38.3
	23.2	24.2	21.2	22.6	19.2	18.4
	44.28	47.54	39.01	50.36	31.18	38.58
	37.92	40	33.31	43.2	25.82	32.73
	85.3	93.2	70.8	91.4	62.3	73.3
	65.1	69.7	50.9	67.2	40.7	51.7
	54.3	57.9	44.7	57.1	41.1	43.75
	46.8	50.3	38.8	50.3	35.7	40.67
	63.2	65.4	55.5	66.3	48.1	55.1
	56.7	60.1	50.8	58.9	44.5	49.9
	4838	6219	5415	6222	4970	5312
	9362	12252	10915	12197	10168	10896
	9	9	9	9	9	9
	8.75	8.75	8.75	8.75	8.75	8.75
	9	9	9	9	9	8
	9	9	9	9	9	9

ENTRY LEVEL SOLUTIONS

The Junior League

With their low power requirements and good video decoding capabilities, these cards make excellent companions for all home PCs

Minnows are generally found in larger quantities than bigger fish, but this time round we could only scrape up four of them. This is due in part to the tremendous drop in prices of mid-range cards in particular. With prices of mid-range cards crashing through the four-thousand-rupee barrier, it seems there's nowhere for the entry level cards to go...the whole "between a rock and a hard place" analogy comes to mind.

The entry-level category was all NVIDIA, and only two chipsets—the new GF 8400GS and the older GF 7300GT.



Sparkle PCX 8400GS 256MB
A seriously affordable solution

An Affordable Foursome

The lowest bracket consisted of two cards from Sparkle. One was an 8400GS-based card, and the other a 7300GT-based solution. The other two DX 10 parts were from BIG and Galaxy; both these are 8400GS solutions.

None of these cards come bundled with any games; this is not a surprise, really, considering the prices. We *were* surprised, though, to see good connector bundles with each card—just as was the case in the mid-range category. This, we say, is a welcome trend.

At the very outset, we wish to make one point crystal clear: these cards aren't for gamers—and you'd be doing a grave injustice to any game released over the past two years by buying one of these cards to play it! Such entry-level chipsets have one catch-phrase—HTPC. With their smaller form factors, low power requirements and good video decoding capabilities (*excellent* for the 8400GS chipset) these cards make excellent companions for all home PCs. And yes, you'll be able to play the odd game too, at lower resolutions and settings!

Sparkle's 7300GT offers 512 MB of video RAM—as mentioned earlier, this doesn't really add to performance in any way. Moreover, the 7300GT isn't DX 10 compatible, and is overpriced—especially considering the similar performing 8400GS chipset-based cards.

If you're looking for something really cheap to build an HTPC, or even a good multimedia PC, we recommend you give onboard graphics a skip and pick up a Sparkle GF PCX 8400GS 256—a real steal of a deal at Rs 2,600. For just Rs 300 more, you could get a Galaxy GF 8400GS—a slightly better performer mainly due to marginally higher core and memory clock speeds. ⊠



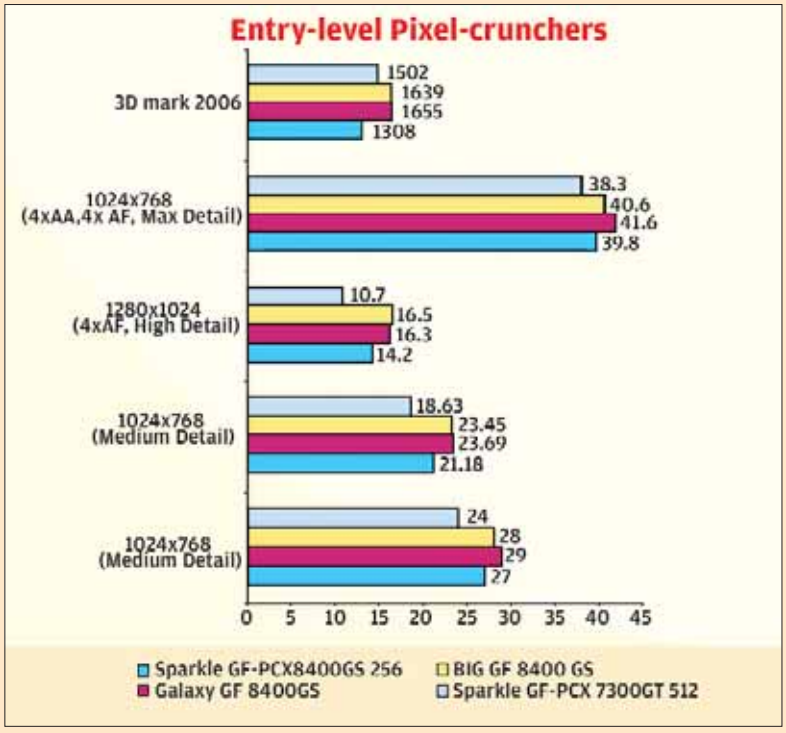
Sparkle PCX 7300GT
Not good value any more



BIG 8400 GS
The biggest minnow!



Galaxy 8400GS-256MB
Good for HTPC users

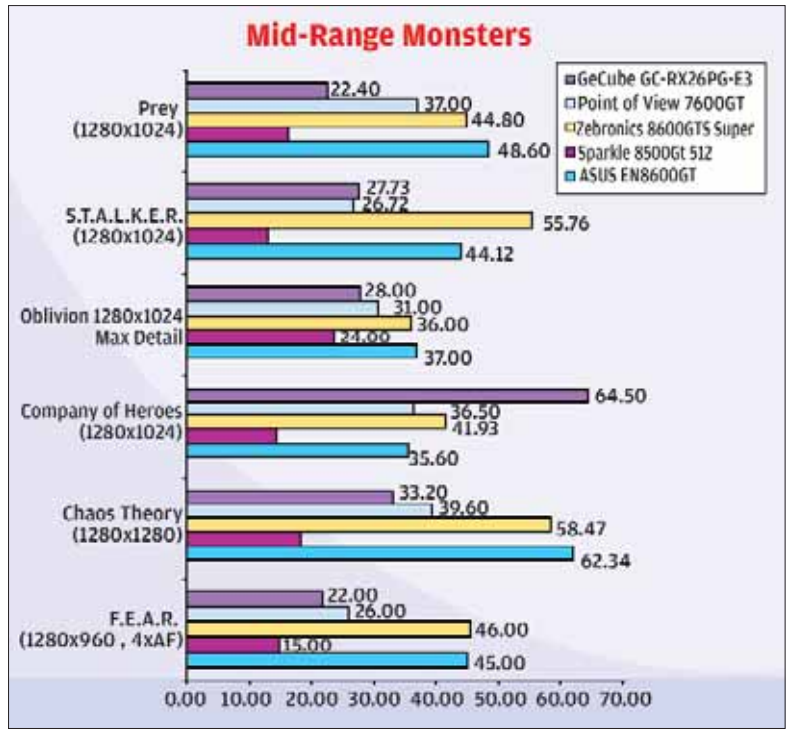


you're sure to find something here. DX 10 makes an appearance in more affordable territory with NVIDIA's GeForce 8500/8600 series and ATI's HD2600 series. Some of the older NVIDIA cards also linger—the 7600 series. Let's not waste any more time: 30 cards vie to make your pocket anywhere between Rs 4,110 and Rs 14,700 lighter!

Now That's A Crowd!

We saw a multitude of cards from ASUS—10 to exact. The EN8600GTS Silent is a heatpipe-based solution, and will draw a second glance—it seems fanless solutions are hot (pun intended!). The ASUS EN8600GT OC Gear actually comes with a 3.5-inch bat solution that has a twist knob for overclocking. Besides looking cool, it's totally functional—no more messy BIOS overclocking, although to be able to really overclock, you will need to get into the BIOS and tweak, since the module only allows a limited overclock of 10 per cent. Considering that the core is already at 540 MHz, this translates to a cool (or hot) 50+ MHz overclock at the simple twist of a knob!

The Zebronics 8600GTS Super has this huge heatsink with fins that resemble the fan blades on a turbine. However, most of the 8600GT cards do not have active cooling for memory chips. The newer ATI RV630-based (a.k.a. Radeon HD2600 Pro) cards have quite an efficient single-slot cooling solution—based on a 65nm manufacturing process, these cores run quite cool (unlike their bigger brother, the HD2900XT).



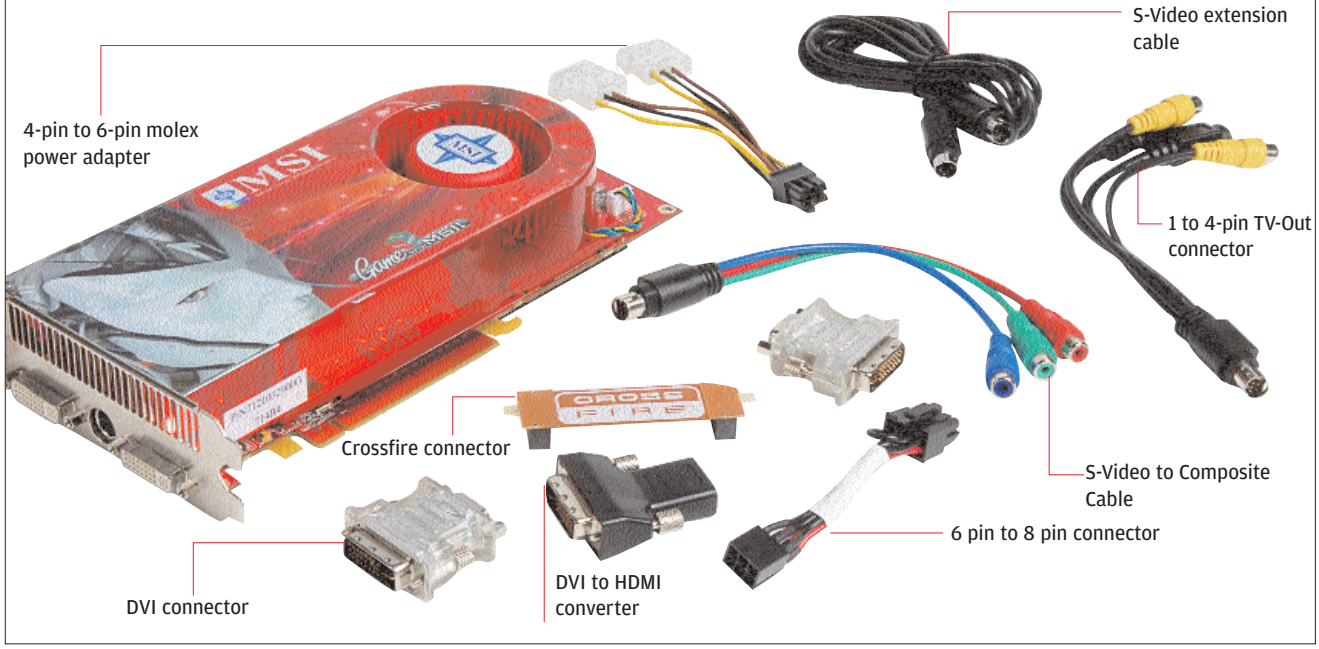
This time round, none of the manufacturers were skimpy while bundling connectors—a trend we hope becomes a norm, considering such connectors don't cost much anyway. Gigabyte takes the initiative and bundles good games with both their cards—*Supreme Commander* with the GV-NX86T256D and *Warhammer 40000: Dark Crusade* with the GV-NX85T256H.

Another trend we've seen and would like to comment on is the trick of using

Parameters	8600GTS	8600GT	8500GT	HD2600	7600GT	7600GS
No Of Transistors (million)	289	289	210	390	177	177
Core speed (MHz)	675	540	450	600	560	450
Number of Shader units	32	32	16	120	12(PS)+5(VS)*	12(PS)+5(VS)*
Memory Bandwidth (GBps)	32	22.4	12.8	22.4	22.4	14.4

*PS= Pixel Shader, VS= Vertex Shader

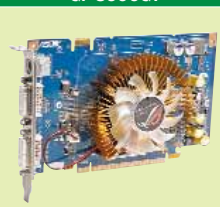
The MSI RX2900XT VT2D512-E, HD-ready, with its bundle. Connectors, convertors, cables galore!



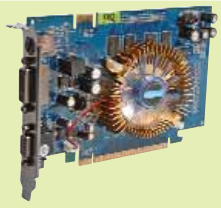
Scoreboard — Mid-range Graphics Cards

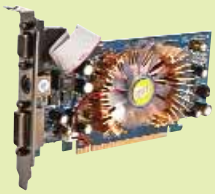
BRAND MODEL	ASUS EN8600GTS Silent	ASUS EN8600GTS	ASUS EN8600GTS TOP	Foxconn 8600GTS-256
Chipset	GeForce 8600GTS	GF8600GTS	GF8600GTS	GF 8600GTS
				
Price (Exclusive of Taxes)	Rs 14,100	Rs 13,740	Rs 14,700	Rs 8,000
Comments	+ Fast, silent – Rather expensive	+ Good cooling solution – Expensive	+ Very fast – Expensive	+ Good cooling, decent pricing – Slower than reference 8600GTS
Grand Total (Out Of 100)	65.12	64.86	66.46	62.46
Features (Out Of 16)	8.96	8.96	8.96	5.44
Performance (Out Of 70)	52.49	52.13	53.97	50.55
Price (Out Of 14)	3.67	3.77	3.52	6.47
Features				
Accessories / Connector Bundle	Composite to S-Video connector, DVI connector, Molex to 4-pin power adapter, CD pack	Composite to S-Video connector, DVI connector, Molex to 4-pin power adapter, CD pack	Composite to S-Video connector, S-Video Cable, DVI connector, Molex to 4-pin power adapter, CD pack	Composite to S-Video connector, S-Video Cable, DVI connector, Molex to 4-pin power adapter
Software / Game Bundle	NA	NA	NA	VirtualDrive v10, RestoreIT v7
Video Memory / Type	256 MB / GDDR3	256 MB / GDDR3	256 MB / GDDR3	256 MB / GDDR3
Performance				
Real-world (Direct 3D Tests)				
F.E.A.R.				
1024x768 (4x AA, 4x AF, Max detail, SS Off)	62	61	66	57
1280x1024 (No AA, 4x AF, Max Detail, SS On)	43	41	43	41
Splinter Cell: Chaos Theory				
1024x768 (4x AA, 4x AF, Max detail, SS On)	82.34	80.83	82.40	82.34
1280x1024 (No AA, 4x AF, Max Detail, SS On)	56.30	55.51	58.32	54.10
Far Cry				
1024x768 (No AA, 4x AF, Ultra detail)	139.86	138.94	143.20	130.60
1280x1024 (4x AA, 4x AF, Ultra Detail)	70.74	75.99	82.54	72.40
Company Of Heroes				
1024x768 (4x AF, No AA, High Detail)	55.10	52.30	55.30	50.30
1280x1024 (4xAF, 4x AA, Max Detail)	36.90	37.50	42.40	36.30
Oblivion				
1024x768 (4x AF, No AA, High Detail)	65	61	61	56
1280x1024 (4xAF, 4x AA, Max Detail)	41	42	38	39
S.T.A.L.K.E.R.				
1024x768 (4x AF, No AA, High Detail)	63.60	60.42	65.34	62.10
1280x1024 (4xAF, 4x AA, Max Detail)	36.68	52.34	56.23	47.64
Real-World (OpenGL Tests)				
Doom 3				
1024x768 (4x AA, 4x AF, Max detail)	89.20	89.80	97.30	86.20
1280x1024 (4x AA, 4x AF, Max Detail)	57.90	58.20	65.20	52.50
Prey				
1024x768 (4x AA, 4x AF, Max detail, Shaders)	98.30	65.70	67.40	66.30
1280x1024 (4x AA, 4x AF, Max Detail, Shaders)	43.90	43.80	45.20	44.20
Serious Sam 2				
1024x768 (2x AA, 4x AF, Max detail, Shaders)	109.80	106.10	107.30	101.40
1280x1024 (2x AA, 4x AF, Max Detail, Shaders)	90.10	91.50	90.56	83.50
Synthetic Tests				
3D Mark 2006 (Default Settings)	5632	5729	5924	5642
3D Mark 2005 (Default Settings)	11257	11386	11632	11336
Visual Quality Tests				
F.E.A.R. (Scale Of 10)	8	8	8	8
S.T.A.L.K.E.R. (Scale Of 10)	7.5	7.5	7.5	7.5
Oblivion (Scale Of 10)	7.5	7.5	7.5	7.5
Company Of Heroes (Scale Of 10)	7.5	7.5	7.5	7.5

BEST BUY digit
OCTOBER 2007

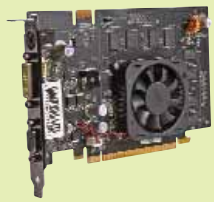
	Zebronics 8600GTS Super	ASUS EN8600GT OC Gear	ASUS EN8600GT	ASUS EN8600GT Silent	BIG 8600GT	Gigabyte GV-NX86T256D
	GF 8600GTS	GF 8600GT	GF 8600GT	GF 8600GT	GF 8600GT	GF 8600GT
						
	Rs 14,000	Rs 11,340	Rs 8,800	Rs 9,600	Rs 7,600	Rs 9,900
	+ Good cooling – Very expensive	+ Gimmicky oveclocking unit – Slower than stock 8600GT	+ Well-priced, fast – None in particular	+ Good cooling solution – None in particular	+ Well-priced – Slower than stock 8600GT	+ Good bundle, well-priced – None in particular
	61.90	60.18	70.03	57.23	55.42	58.91
	4.48	**8.96**	**8.96**	**8.96**	**4.48**	**9.60**
	53.72	**46.65**	**55.19**	**42.88**	**44.13**	**44.08**
	3.70	**4.57**	**5.88**	**5.39**	**6.81**	**5.23**
	Composite to S-Video connector, S-Video Cable, DVI connector, Molex to 4-pin power adapter	Composite to S-Video connector, S-Video Cable, DVI connector, Molex to 4-pin power adapter	Composite to S-Video connector, S-Video Cable, DVI connector, Molex to 4-pin power adapter	Composite to S-Video connector, S-Video Cable, DVI connector, Molex to 4-pin power adapter	Composite to S-Video connector, S-Video Cable, DVI connector, Molex to 4-pin power adapter	Composite to S-Video connector, S-Video Cable, DVI connector, Molex to 4-pin power adapter
	NA	NA	NA	NA	NA	Supreme Commander
	512 MB / DDR2	256 MB / GDDR3	256 MB / GDDR3	256 MB / GDDR3	512 MB / DDR2	256 MB / GDDR3
	69	45	68	47	46	47
	46	30	45	32	34	33
	85.32	64.52	90.58	62.53	64.37	64.26
	58.47	44.06	62.34	42.70	43.27	43.89
	141.43	128.33	140.40	124.86	123.65	125.96
	81.86	55.99	86.04	55.16	55.34	57.17
	56.32	46.50	55.50	44	45.23	44.30
	41.93	28.30	35.60	30.30	29.55	30.70
	59	68	60	57	61	61
	36	38	37	36	39	37
	65.24	62.13	63.40	60	58.54	55.22
	55.76	37.50	44.12	33.90	44.65	43.79
	98.20	65.10	100.20	64.50	65.30	66.90
	64.30	41.80	66.20	40.40	44.20	43.50
	65.90	84.50	73.70	49.70	52.30	52
	44.80	34.30	48.60	33.30	35.40	35.40
	107.90	101.80	112.10	96.50	97.30	98.70
	87.60	78.10	95.80	73	71.40	72.30
	5749.	5736	6303.00	4520	4587	4623
	11467	10473	13078.00	8783	8932	8990
	8	8	8	8	8	8
	7.5	7.5	7.5	7.5	7.5	7.5
	7.5	7.5	7.5	7.5	7.5	7.5
	7.5	7.5	7.5	7.5	7.5	7.5

Scoreboard — Mid-range Graphics Cards

BRAND MODEL	Point of View 8600GT	Galaxy 8600GT 512	XFX PV-T84J-UDF7	ASUS EN8500GT Silent
Chipset	GF 8600GT	GF 8600GT	GF 8600GT	GF 8500GT
				
Price (Exclusive of Taxes)	Rs 7,800	Rs 7,000	Rs 7,200	Rs 5,940
Comments	+ Value for money – Slower than other 8600GT's	+ Exceptional value – Unnecessary extra memory	+ Great value – None in particular	+ Good-value DX10 offering – Not for gaming
Grand Totals (Out Of 100)	48.54	56.17	57.19	60.06
Features (Out Of 16)	5.44	5.44	5.44	8.96
Performance (Out Of 70)	36.46	43.33	44.56	42.38
Price (Out Of 14)	6.64	7.40	7.19	8.72
Features				
Accessory/ Connector Bundle	Composite to S-Video connector, S-Video Cable, DVI connector, Molex to 4-pin power adapter	Composite to S-Video connector, S-Video Cable, DVI connector, Molex to 4-pin power adapter	Composite to S-Video connector, S-Video Cable, DVI connector, Molex to 4-pin power adapter	Composite to S-Video connector, S-Video Cable, DVI connector, Molex to 4-pin power adapter
Software / Game Bundle	NA	NA	NA	NA
Video Memory / Type	256 MB / GDDR3	512 MB / DDR2	256 MB / GDDR3	256 MB / GDDR3
Performance				
Real World (Direct 3D Tests)				
F.E.A.R.				
1024x768 (4x AA, 4x AF, Max detail, SS Off)	38	46	46	43
1280x1024 (No AA, 4x AF, Max Detail, SS On)	28	34	35	32
Splinter Cell: Chaos Theory				
1024x768 (4x AA, 4x AF, Max detail, SS On)	56.43	64.37	65.79	63.23
1280x1024 (No AA, 4x AF, Max Detail, SS On)	41.80	43.27	44.01	41.20
Far Cry				
1024x768 (No AA, 4x AF, Ultra Detail)	109.40	123.65	127.17	121.70
1280x1024 (4x AA, 4x AF, Ultra Detail)	49.56	55.34	58.87	49.60
Company Of Heroes				
1024x768 (4x AF, No AA, High Detail)	38.50	45.23	45.50	42.80
1280x1024 (4xAF, 4x AA, Max Detail)	26.40	29.55	29	28.90
Oblivion				
1024x768 (4x AF, No AA, High Detail)	52	54	59	55
1280x1024 (4xAF, 4x AA, Max Detail)	34	28	40	36
S.T.A.L.K.E.R.				
1024x768 (4x AF, No AA, High Detail)	36.23	58.54	58.35	63
1280x1024 (4xAF, 4x AA, Max Detail)	23.68	44.65	42.11	34.10
Real World (OpenGL Tests)				
Doom 3				
1024x768 (4x AA, 4x AF, Max detail)	45.40	65.30	70	64.20
1280x1024 (4x AA, 4x AF, Max Detail)	30.40	44.20	45.80	40
Prey				
1024x768 (4x AA, 4x AF, Max detail, Shaders)	36.60	52.30	52	48.50
1280x1024 (4x AA, 4x AF, Max Detail, Shaders)	25.30	35.40	34.70	34
Serious Sam 2				
1024x768 (2x AA, 4x AF, Max detail, Shaders)	54.50	97.30	102.80	95.60
1280x1024 (2x AA, 4x AF, Max Detail, Shaders)	45.10	71.40	4.30	72.50
Synthetic Tests				
3D Mark 2006 (Default Settings)	4215	4587	4683	4484
3D Mark 2005 (Default Settings)	8474	8932	8675	8697
Visual Quality Tests				
F.E.A.R. (Scale Of 10)	8	8	8.	8
S.T.A.L.K.E.R. (Scale Of 10)	7.5	7.5	7.5	7.5
Oblivion (Scale Of 10)	7.5	7.5	7.5	7.5
Company Of Heroes (Scale Of 10)	7.5	7.5	7.5	7.5

ASUS EN8500GT TOP	Sparkle 8500GT 512	BIG 8500GT	Gigabyte GV-NX85T256H	Leadtek WinFast PX8500GT	Point of View 8500GT 512
GF 8500GT	GF 8500GT	GF 8500GT	GF 8500GT	GF 8500GT	GF 8500GT
					
Rs 7,200	Rs 4,375	Rs 5,600	Rs 8,900	Rs 4,500	Rs 5,800
+ Overclocked – Issues with heating; pricey	+ Affordable DX10 solution – Not for gaming	+ Good solution for HD video – Not for gaming	+ Good bundle – Overpriced	+ Entry to DX 10 – Lacking in performance	+ Affordable DX10 solution – Sluggish performance
47.75	42.84	37.20	40.71	42.43	39.07
8.96	**6.40**	**4.48**	**9.60**	**7.04**	**5.44**
31.60	**24.60**	**23.47**	**25.29**	**23.88**	**24.70**
7.19	**11.84**	**9.25**	**5.82**	**11.51**	**8.93**
Composite to S-Video connector, S-Video Cable, DVI connector, Molex to 4-pin power adapter	Composite to S-Video connector, S-Video Cable, DVI connector, Molex to 4-pin power adapter	Composite to S-Video connector, S-Video Cable, DVI connector, Molex to 4-pin power adapter	Composite to S-Video connector, S-Video Cable, DVI connector, Molex to 4-pin power adapter	Composite to S-Video connector, S-Video Cable, DVI connector, Molex to 4-pin power adapter	Composite to S-Video connector, S-Video Cable, DVI connector, Molex to 4-pin power adapter
NA	NA	NA	Dark Crusade	Joint Task Force	NA
256 MB / DDR2	512 MB / DDR2	512 MB / DDR2	256 MB / DDR2	256 MB / DDR2	512 MB / DDR2
40	29	25	30	26	30
21	15	12	15	13	15
39.76	26.30	24.21	27.34	23.53	26.23
27.18	18.34	15.73	18.75	16.27	20.23
90.27	65.43	61.43	69.47	62.47	65.10
44.32	34.11	31.26	34.01	31.74	32.35
26.60	19.30	17.20	19.50	17.46	15.34
18.30	14.30	12.73	14.10	13.15	13.57
39	37	38	36	37	35
27	24	25	25	23	22
36.85	22.30	20.63	25.40	21.52	22.10
22.75	13.20	10.62	13.40	11.74	13.70
56.10	39.20	36.20	43	37.80	37.40
33.80	22.10	20.60	23.40	21.60	22.30
40.10	24.80	23.20	26.40	22.60	29.50
26.20	16.20	14.80	17.10	15.10	19.30
57.90	46.70	48.20	47.20	49.50	47.40
41	33.30	31.50	34.50	33.20	32.30
3145	2041	1984	2183	2098	2134
5235	4298	4109	4356	4293.	4335
8	8	8.00	8	8	8
7.5	7.5	7.5	7.5	7.5	7.5
7.5	7.5	7.5	7.5	7.5	7.5
7.5	7.5	7.5	7.5	7.5	7.5

Scoreboard — Mid-range Graphics Cards

BRAND MODEL	Sparkle 8500GT 256MB	XFX PV-T86J-UAL3	Zebronics 8500GT	Point of View 7600GT
Chipset	GF 8500GT	GF 8500GT	GF 8500GT	GF 7600GT
				
Price (Exclusive of Taxes)	Rs 4,110	Rs 4,800	Rs 5,500	Rs 6,600
Comments	+ Well-priced – Lacking in performance	+ Good for HD video playback – Not for gaming	+ Good entry point to DX 10 – Not for gaming	+ Decent performer – Costly
Grand Total (Out Of 100)	42.48	41.62	38.15	51.31
Features (Out Of 16)	5.44	5.44	4.48	5.44
Performance (Out Of 70)	24.44	25.39	24.25	38.02
Price (Out Of 14)	12.60	10.79	9.42	7.85
Features				
Accessories / Connector Bundle	Composite to S-Video connector, S-Video Cable, DVI connector, Molex to 4-pin power adapter	Composite to S-Video connector, S-Video Cable, DVI connector, Molex to 4-pin power adapter	Composite to S-Video connector, S-Video Cable, DVI connector, Molex to 4-pin power adapter	Composite to S-Video connector, S-Video Cable, DVI connector, Molex to 4-pin power adapter
Software / Game Bundle	NA	NA	NA	NA
Video Memory / Type	256 MB / DDR2	256 MB / DDR2	512 MB / DDR2	256 MB / GDDR3
Performance				
Real-world (Direct 3D Tests)				
F.E.A.R.				
1024x768 (4x AA, 4x AF, Max Detail, SS Off)	28	29	25	42
1280x1024 (No AA, 4x AF, Max Detail, SS On)	14	14	12	26
Splinter Cell: Chaos Theory				
1024x768 (4x AA, 4x AF, Max Detail, S.S On)	24.94	25.23	23.11	53.52
1280x1024 (No AA, 4x AF, Max Detail, S.S On)	17.20	19.00	15.75	39.60
Far Cry				
1024x768 (No AA, 4x AF, Ultra Detail)	64.02	65.43	64.24	120.34
1280x1024 (4x AA, 4x AF, Ultra Detail)	33.65	34.56	32.53	54.31
Company Of Heroes				
1024x768 (4x AF, No AA, High Detail)	18.65	18.65	17.80	50.10
1280x1024 (4xAF, 4x AA, Max Detail)	13.78	13.35	14.20	36.50
Oblivion				
1024x768 (4x AF, No AA, High Detail)	32	37	38	55
1280x1024 (4xAF, 4x AA, Max Detail)	27	29	29	31
S.T.A.L.K.E.R.				
1024x768 (4x AF, No AA, High Detail)	22.10	23.10	22.42	40.43
1280x1024 (4xAF, 4x AA, Max Detail)	12.30	14.30	12.11	26.72
Real-world (OpenGL Tests)				
Doom 3				
1024x768 (4x AA, 4x AF, Max Detail)	38.60	38.80	36.70	58.30
1280x1024 (4x AA, 4x AF, Max Detail)	21.60	24.70	21	39
Prey				
1024x768 (4x AA, 4x AF, Max Detail, Shaders)	23.20	28.20	21.40	53.70
1280x1024 (4x AA, 4x AF, Max Detail, Shaders)	15.30	18.30	14.60	37
Serious Sam 2				
1024x768 (2x AA, 4x AF, Max Detail, Shaders)	50.10	49.60	51.70	71.30
1280x1024 (2x AA, 4x AF, Max Detail, Shaders)	34.60	35.30	34.40	52.80
Synthetic Tests				
3D Mark 2006 (Default Settings)	2165	2168	2124	3637
3D Mark 2005 (Default Settings)	4311	4412	4318	6704
Visual Quality Tests				
F.E.A.R. (Scale Of 10)	8.	8	8	7.5
S.T.A.L.K.E.R. (Scale Of 10)	7.5	7.5	7.5	7
Oblivion (Scale Of 10)	7.5	7.5	7.5	7
Company Of Heroes (Scale Of 10)	7.5	7.5	7.5	7

	XFX PV-T73G-UGF7	ASUS EN7600GS TOP Silent	Sparkle GF-PCX 7600GS 512	ASUS EAH2600 Pro	GeCube GC-RX26PG2-E3	Gigabyte GV-RX26P5512H
	GF 7600GT	GF 7600GS	GF 7600GS	Radeon HD2600 Pro	Radeon HD2600 Pro	Radeon HD2600 Pro
						
	Rs 6,000	Rs 8,500	Rs 4,450	Rs 6,780	Rs 14,000	Rs 7,900
	+ Reasonably-priced – Not DX 10 compatible	+ Innovative cooling solution – Costly now	+ Runs very cool – Not value for money now	+ Well-priced DX 10 solution – None in particular	+ Attractive-looking cooler – Skimpy bundle; expensive	+ Good all-round solution – None in particular
	57.75	47.92	46.17	53.59	47.00	54.74
	8.64	**8.32**	**5.44**	**8.96**	**5.44**	**9.60**
	40.48	**33.51**	**29.09**	**36.99**	**37.86**	**38.59**
	8.63	**6.09**	**11.64**	**7.64**	**3.70**	**6.56**
	Composite to S-Video connector, S-Video Cable, DVI connector, Molex to 4-pin power adapter	Composite to S-Video connector, S-Video Cable, DVI connector, Molex to 4-pin power adapter	Composite to S-Video connector, S-Video Cable, DVI connector, Molex to 4-pin power adapter	Composite to S-Video connector, S-Video Cable, DVI connector, Molex to 4-pin power adapter	Composite to S-Video connector, S-Video Cable, DVI connector, Molex to 4-pin power adapter	Composite to S-Video connector, S-Video Cable, DVI connector, Molex to 4-pin power adapter
	GRAW	Billy Blade, Savage, Mashed	NA	NA	NA	NWN 2
	256 MB / GDDR3	512 MB / GDDR2	512 MB / DDR2	256 MB / DDR2	512 MB / DDR2	512 MB / DDR2
	44	36	32	27	26	27
	29	23	21	26	22	29
	58.64	44.68	47.43	43.65	46.47	45.46
	43.73	31.03	31.34	33.20	33.20	32.25
	132.40	108.38	103.45	82.37	80.54	76.56
	60.42	42.90	45.24	24.31	24.68	22.90
	55.10	46.90	43.30	76.40	80.40	77.40
	36.70	34	28.50	60.50	64.50	63.50
	58	49	45.00	58	58	57
	35	28	26	27	28	38
	43.24	34.72	27.53	30.63	36.72	34.78
	28.43	24.65	14.73	11.37	27.73	28.13
	62.50	52.80	42.40	42.60	56.30	55.70
	42.30	35	29.40	28.40	44.20	41.30
	61	43.80	45.60	44.20	34.20	34.90
	40.40	29.80	29.50	26.70	22.40	23.40
	77.40	63.80	39.60	36.80	34.20	37.70
	56.20	45.80	41.50	40.30	23.70	26.90
	3842	2973	1826	5285	5184	5234
	6788	5313	3083	8216	8154	8234
	7	7.5	7.5	8.5	8.5	8.5
	7	7	7	8	8	8
	7	7	7	8	8	8
	7	7	7	8	8	8

more memory on slower cores. GPUs like the 8600/8500/7600 series generally perform optimally with 256 MB of fast memory. What card manufacturers do is up the amount of video memory to, say, 512 MB, but use DDR2 RAM where DDR3 would normally be used. Such a card will not have much of an advantage over a card with, say, half the memory—simply because the mid-range and entry-level graphics cores don't have sufficient horsepower to keep all that memory busy. And due to slower memory speeds, there's less bandwidth available when it may really be needed. In some cases (when a game demands a larger frame buffer) 512 MB may be marginally better than 256 MB, but for the most part, a fast 256 MB will outperform slower 512 MB of video memory on these lower GPUs.

How They Performed

Despite the fact that the GTS and GT versions of NVIDIA's G84 (8600 series) are only separated by sheer clock speeds, there is quite a difference between the performance of cards based on these chipsets. This bespeaks good clock scaling—a good thing. The 8500GT based cards aren't in the same league as their elder siblings—there's a good bit of difference in the architecture, and it shows. We were surprised to see the ASUS EN8600GT outperform all the other 8600GT cards, and in fact demolish the 8600GTS cards. The reason for this seemingly magical performance turned out to be a factory-overclocked core—from 540 MHz to 625 MHz. The Point of View 8600GT seemed to be facing some issues with many of the benchmarks, and puzzlingly, delivered consistently lower frames than other cards. We ran the benchmarks several times and tried driver reinstalls, even swapping other cards and testing... inexplicable!

ASUS' EN8500GT Silent was another standout. It manages to come close to the other 8600GT cards; we initially thought we'd accidentally plugged in another 8600GT—another case of overclocking, this time by a whopping 150 MHz over stock speeds (600 vs. 450 MHz). XFX's PV-T84J-UDF7 (8600GT) is another good performer—it consistently manages to stay ahead of the other 8600GT based cards by tiny margins.

Choices, Choices

If you're looking for an excellent performer that will cost you significantly less than even lower-performing parts, then look no further than the ASUS EN8600GT (Rs 8,800). It matches the 8600GTS cards at just 60 per cent of their price. If you have a budget of around Rs 7,000, consider saving a little more for this excellent card. If you need further convincing, we've awarded it our Best Buy Gold award. The overclocked EN8600GTS TOP from ASUS gets our Best Buy Silver, but to be very honest, we'd suggest you stick with the Gold Winner because of its sterling price.

The GTS and GT versions of NVIDIA's G84 (8600 series) are only separated by sheer clock speeds, but there is quite a difference between the performance of cards based on these chipsets

At a lower budget, XFX's PV-T84J-UDF7 will offer all the thrills, but with a little less wind in your FPS sails at a great price of Rs 7,200. In case you're looking for a good card for an HTPC that will allow you to enjoy HD content in all its visual splendor, take a look at Sparkle's 8500GT 256MB—at Rs 4,110, this is component for an HTPC with the occasional casual game thrown in.

ATI's HD2600Pro chipsets don't create too much of a splash—for one, they're slightly overpriced for the performance they deliver. As things currently stand, we can't really recommend any cards based on these chipsets as solutions.

BEST BUY digit OCTOBER 2007



ASUS-EN8600GTS silent
Fast. Silent. Expensive.

Something For Everybody

Contrary to the many industry experts who believed that the *bigger, faster, better* race between NVIDIA and ATI would slow down, this year has actually seen an acceleration of sorts. DX 10 being the wet squib it turned out to be notwithstanding, both companies have announced successors to their current line-up of cards. Rumours abound regarding release dates, but we have sufficient reason to believe NVIDIA has a GeForce 9 series not very far from the retail markets. ATI, too, has announced an HD3000 family, though details are sketchy at best. These cards should have support for DX 10.1—although once again, how they perform on an API that nobody's seen is anyone's guess.

But all this is irrelevant to most of you. The fact is, all this hype and competitiveness has brought around better technology at much cheaper prices. We reckon graphics cards aren't the novelty they were once considered. If you've been holding on to those purse strings for all you're worth, now may just be the time to indulge yourself... !

michael_browne@thinkdigit.com

Contact Sheet **Graphics Cards**

Brand	Company	Phone	E-mail
ASUS	Asus Technology Pvt Ltd	022-6766 8800	http://in.asus.com
BIG	BIG Byte Corporation	022-23894800 /1/2/3/4	www.bigbyteindia.com
Foxconn	CSD EU B.V. (Foxconn-MEIA)	00-971-4-2045266/5276	www.foxconnchannell.com
Galaxy	Technology and Gadgets	91-22-23823331 /2	www.technologyandgadgets.com
GeCube	Tirupati Enterprises	9339207519	www.tirupati.net
Gigabyte	Gigabyte Technology India Ltd	022-30616666	www.gigabyte.com.tw
Leadtek	Zebronics / TopNotch Infotronix	044-26616201	www.zebronics.com
MSI	Micro-Star International	011-41758808	www.msi-india.com
Point of View	Tirupati Enterprises	9339207519	www.tirupati.net
Sparkle	Abacus Peripherals Pvt Ltd	022-40914600	www.abacusperipherals.com
XFX	Rashi Peripherals Pvt Ltd	022-67090909	www.rptechindia.com
Zebronics	Zebronics / TopNotch Infotronix	044-26616201	www.zebronics.com

TAKE a CRACK

THIS MONTH'S CHALLENGE

Create An XP Live CD



What steps would you follow to create a Live CD of Windows XP so you can boot into the OS without installation?

Send in your solution with the subject "Take a Crack", and your postal address, to **takeacrack@thinkdigit.com**

LAST MONTH'S CHALLENGE

Make Explorer's Menu Bar Vanish, Then Re-appear

Solution To Last Month's Challenge

We'll mention two solutions; the first solution is the quicker one.

Open Notepad and type in the following.

```
Windows Registry Editor Version 5.00
[-HKEY_CLASSES_ROOT\CLSID\{5b4dae26-b807-11d0-9815-00c04fd91972}]
```

Save the file as `menubarsdisable.reg`. Double-click on the file and press Yes when prompted. Restart your computer, and you will see that the menu bar in Windows Explorer has disappeared.

Making the menu bar reappear is not as simple as reversing the changes you made to make it disappear! Here's what you need to do: open Notepad and type in the following.

```
Windows Registry Editor Version 5.00
[HKEY_CLASSES_ROOT\CLSID\{5b4dae26-b807-11d0-9815-00c04fd91972}]
@="Menu Band"
[HKEY_CLASSES_ROOT\CLSID\{5b4dae26-b807-11d0-9815-
00c04fd91972}\InProcServer32]
@=hex(2):25,00,53,00,79,00,73,00,74,
00,65,00,6d,00,52,00,6f,00,6f,00,74,
00,25,\
00,5c,00,73,00,79,00,73,00,74,00,65,
00,6d,00,33,00,32,00,5c,00,53,00,48,
00,\
45,00,4c,00,4c,00,33,00,32,00,2e,00,
64,00,6c,00,6c,00,00,00
"ThreadingModel"="Apartment"
```

Save the file as `menubarsenable.reg`. Double-click it and press Yes when prompted. Again, open Notepad and type in:

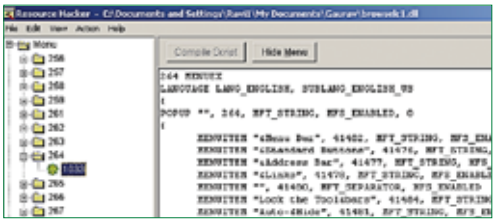
```
Dim myShell
Set myShell =
CreateObject("WScript.Shell")
myShell.Run("regsvr32 /i shell32")
Set myShell = Nothing
MsgBox "Menu bars have been
restored.", 4096,"Finished"
```

Save the file as `menubandrestore.vbs` and double-click on it. Click OK twice when prompted. Done!

The longer solution is by using Resource Hacker. This is a different approach—you can make the menu bar disappear and reappear using a toggle mechanism by means of a left-click context menu.

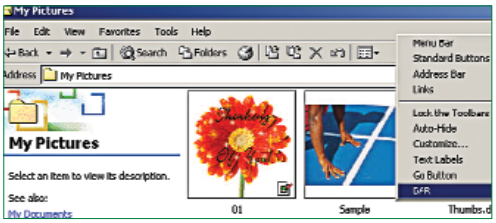
Disabling The Menu Bar

We need Resource Hacker, a freeware that can be downloaded from **www.soft32.com/download_3568.html**. Open Resource Hacker and open `browselc.dll`. You can find this inside the Windows directory. In Windows NT you can find it in `\winnt\system32`.



Make your changes using Resource Hacker

Click on Menu number 264 on the left, copy the first line that starts with `MENUITEM`, and paste it below the last line in that block. Change `"&Menu Bar"` to `"BAR"` (though you can write out any other string here). This



Left-click to make the menu bar disappear/reappear

makes the context menu (which appears upon clicking on the title bar) show the `"BAR"` command, as shown in the figure.

Save the file with a different name. Now boot your system using a bootable disk and open a DOS prompt. Replace the old `browselc.dll` with the new one (back up the original file), and restart the computer.

Now when you left-click on the menu bar, you will get the `BAR` option, click it and it will make the menu bar disappear.

2. Re-enabling The Menu Bar

Click on the BAR option again to make the Menu Bar reappear, or just copy the original `browselc.dll` back. ⊠

LAST MONTH'S WINNER

Gaurav
Kottur, Chennai

Win!



Take a Crack and win

JAVA Persistence with Hibernate

by Christian Bauer and Gavin King

Published by

WILEY-INDIA

Rules and Regulations

- Readers are requested to send in their answers by the 15th of the month of publication.
- Employees of Jasubhai Digital Media and their relatives are not permitted to participate in this contest.
- Readers are encouraged to send their replies by e-mail. Jasubhai Digital Media will not entertain any unsolicited communication.
- Jasubhai Digital Media is not responsible for any damage to your system that may be caused while you are trying to solve the problem.

Funtrack Paintball Panzer

Every shoot-em-up gamer loves paintball games—it's the only way you can have the fun of gun-toting without the un-fun risk of death. War-game lovers, computer gamers or not, want added firepower when paintballing, too. Then there's just the lazy people who want to play war games but hate the idea of all that walking, running and ducking about. Say hello to the Funtrak Paintball Panzer. This is a custom-built, mini panzer tank (yes, the WW II, German





killing-machine type); it has a rollcage, a rather large paintball gun that can shoot paint-filled projectiles at over 200 kmph—while being driven! This tank will have you mimicking The Terminator and yelling "I'll be back" on the war games battlefield. Of course there are those who prefer laser tag to paintball games—lasers are safer, since paintballs can accidentally kill dogs and old people, and cause bad bruises—and there's a laser version available too. Price? Almost Rs 6 lakh. Not at all steep considering it will let you brag about being the only Indian with *an actual tank* at home!

Droolmaal

The good stuff

InPhase Tapestry Holographic Storage

You've read about holographic storage quite a few times in *Digit*. And here it is: you can now go out and buy your own holographic storage drive and media! (Provided you have a seven-figure income!) The InPhase Tapestry drive and media use holographic storage to give you (currently) 300 GB per HVD (Holographic Versatile Disc), which can be written at 20 MBps. InPhase has promised to increase this to 1.6 TB per HVD, with transfer rates of 120 MBps, in under four years. For now, though, you will have to make do with 300 GB discs, which cost $180 each (Rs 7,300). At least you'll have all your movies on a single disc! The drive, however, is a different matter altogether: and costs $18,000 (over Rs 7 lakh)... we'll leave it to you to decide if it's worth it, but we can guess.



Sony HES-V1000 Home Entertainment Server

Blu-ray is here to stay, and you think it's time you went out and bought yourself that player to be able to watch movies on Blu-ray discs. But why buy a player when you can buy an entertainment centre is what we always say...

Presenting the HES-V1000, Sony's Blu-fix for entertainment junkies. We'll let the feature-list say it all: 200 BD / DVD / CD changer, full 1080p HD output, 500 GB hard drive for even more storage (as if you need it), HDMI output, Dolby Digital and dts 5.1 audio, MP3 and JPEG playback, Ethernet port to connect to the Net for updates and media information, and even a Blu-ray disc burner so you can record on BDRs! It's a steal for $3,500 (about Rs 1,40,000), so pre-order yours today!



Elemental Designs D1—A Dodecasub



Tired of your friends showing off their new hi-fi systems, boasting of the feature sets, RMS output, and more? Just go out and get a Dodecasub and drown their ranting in earthquake-like thump! The eD D1—Dodecasub is a 12-sided subwoofer with 10-inch woofers, each capable of 600 watts RMS. Since the top and bottom of the 12-sided sub have no speakers, that comes to 10 x 600 = 6,000 watts RMS of pounding power! Of course, there's technology involved, and five of the woofers fire in phase and the other five out of phase, and all that, but who cares? Six thousand watts RMS of power will drown out a rock concert... start saving now though, because after you shell out $2,500 (about a lakh) for this baby, you're still going to have to get speakers that can be heard over this woofer—and an amplifier that can output, oh, about 12 to 15 thousand watts RMS to power it all. Oh, and make sure you save enough for the electricity bill too.



Stuff to lust after • Stuff for the well-moneyed

Kharma Grand Enigma

We've included speaker sets in this section—actually, forget them. Meet the granddaddy of all speaker sets, the Grand Enigma System from Dutch audio specialists Kharma. Breaking tradition, we'll start with price: a whopping million dollars, and yes, we're talking USD! Do you really need to know the specifications for such a system? For the inquisitive few, the speakers were custom-designed for a huge cellar in Belgium, can output *1,00,000* watts RMS, weigh 10,000 kg, and have a frequency response of 10 Hz to 100 kHz. You can't buy these off the shelf (obviously), but if you have a crore or four lying about, get Kharma to design you one.



Giving Back To

In the quest to make machines work better, we've finally hit upon the secret ingredient—us!

Nimish Chandiramani

Humans power technology. Simple truth. Machines have become such an integral part of our lives that we subconsciously accept them as beings, which is probably why we get so annoyed when they act like idiots. While we liberally abuse Windows, Google Image Search, voice recognition software and countless other software and services, we forget that old gem—GIGO (garbage in, garbage out). Write bad code, get bad software. Muck up a search query, get irrelevant search results.

"Help me help you," says the salesman to his customer, says the doctor to his patient, says the PC to its user. Funny how that last bit never occurs to us. Your computer won't do your taxes of its own volition, and the Web won't give you the right answers unless you ask the right questions. Technology won't serve us better till we help it do so.

The Old-fashioned Way

The best way to get help, of course, is to ask for it. One of the most challenging tasks for a computer is labelling images so they'll turn up in relevant search queries. A program can't know that DSC00023.jpg is a picture of a pigeon in a banyan tree, and will never be able to tell—unless it's truly intelligent, and we all now know enough not to hold our breath for AI. Humans, on the other hand, can immediately come up with a whole bunch of labels for any image. But the show must go on, so somewhere in the world, someone is tagging these images so you can see it when you type in "pigeon tree" in an image search. It's still an incredible task for a small group of people, but what if all of us got involved?

The concept is simple. Sign up at Google Image Labeler (**http://images.google.com/imagelabeler/**) or the ESP Game **(http://www.espgame.org/)** and play the image labelling game. You get paired with a random partner from a random corner of the world, and you're both shown the same image. Both of you spew keywords to describe the image, and when your keywords match, you both get points. You get your few minutes of entertainment (not to mention the pride of earning points for it), Google's Image Search algorithm gets away with being just a bit of code, and a satisfied user somewhere gets the search result he wanted. Everyone's happy.

Then again, not many people are always willing to help...

Getting Sneaky, Part I

Image labelling isn't the only way you can do your bit—in fact, there's another thing you're helping with already. When you register for any community site (forums, blogs and more), you're asked to "prove that you're human" by typing the word you see in a verification image. Instead of the computer using complex AI-like algorithms to detect spam-bot behaviour, it just asks you to use your human intelligence, stumping the bots. It's called CAPTCHA, and now, Carnegie Mellon's Luis von Ahn is taking this one step ahead with reCAPTCHA.

Right now, the Internet Archive (**www.archive.org**), among other groups, is digitising classic books to create an online repository of books that were written before the computers came. The physical books are being scanned and given to OCR (Optical Character Recognition) programs—all very well, but there are some snags. OCR software isn't perfect, so a lot of words come out misread (luckily, most programs tell you that there may have been an error). The only way to get the right word is to have it read by a human, and with the volumes of text we're talking about, a small group isn't feasible. So von Ahn decided to take advantage of the fact that people solve 60 million CAPTCHAs a day—if each CAPTCHA was replaced with a word that the OCR software was having a problem with, then people would not only be proving their humanity to the site, they'd also be helping digitise the books without errors! Every unrecognised word is paired with another word that the program knows the answer for; if you get one right, it assumes that you got the other one right too. It doesn't stop there, though—now that you know how it works, you'll likely try to see if you can get away with typing gibberish for the second word (you know you want to). To counter this, the program accepts the answer for the unknown word only after a certain number of people have given the same answer.

The best part is that nobody has to go around soliciting help from Web users—they're doing what they would do anyway, but their activities have an effect they don't fathom.

Getting Sneaky, Part II

You only use 10 percent of your brain, they say—

how does the thought of leasing the remaining 90 strike you? While that's not exactly accurate, Microsoft Research's Desney Tan and Pradeep Shenoy from the University of Washington do plan on using your mind to help computers detect and recognise faces better. Face detection algorithms are extremely complex, and depend on camera quality, the angle that the face is photographed at, the background and what-have-you. A picture with five faces in it may well get rejected as junk. We, on the other hand, can pick a face out of a crowd, at night, *and* with our eyes half-closed. Incidentally, the human brain isolates faces subconsciously—you could be sitting in a crowded bus, reading the newspaper, but your brain is processing all the faces that enter your peripheral vision.

And that's where *Subconscious Computing* comes in. Tan and Shenoy's system records subjects' EEG (Electro-encephalograph, or brain-waves) patterns while they are viewing images—the responses are starkly different when they view images with and without human faces. With a single subject, the computer was able to identify images with faces with 72.5 per cent accuracy; for eight subjects, it's 98 per cent. Imagine this system hooked up to a security guard watching a surveillance video—using his EEG waveform, the system can determine which frames have faces in them, so if the feed needs to be analysed, hours of useless footage can be safely discarded.

Sure, it's spooky—we don't want machines to have access to our subconscious minds (hell, *we* barely know what's going on in there), but the concept is in the nascent stage, so we've got plenty of time to sort out the ethical issues: one of the ideas is to have images flash on screens in your peripheral vision while you go about your daily business—so you aren't interrupted, and the system gets the output it wants. Of course, this can get pretty intrusive.

Not everything needs to interfere with Life As Usual...

People Power

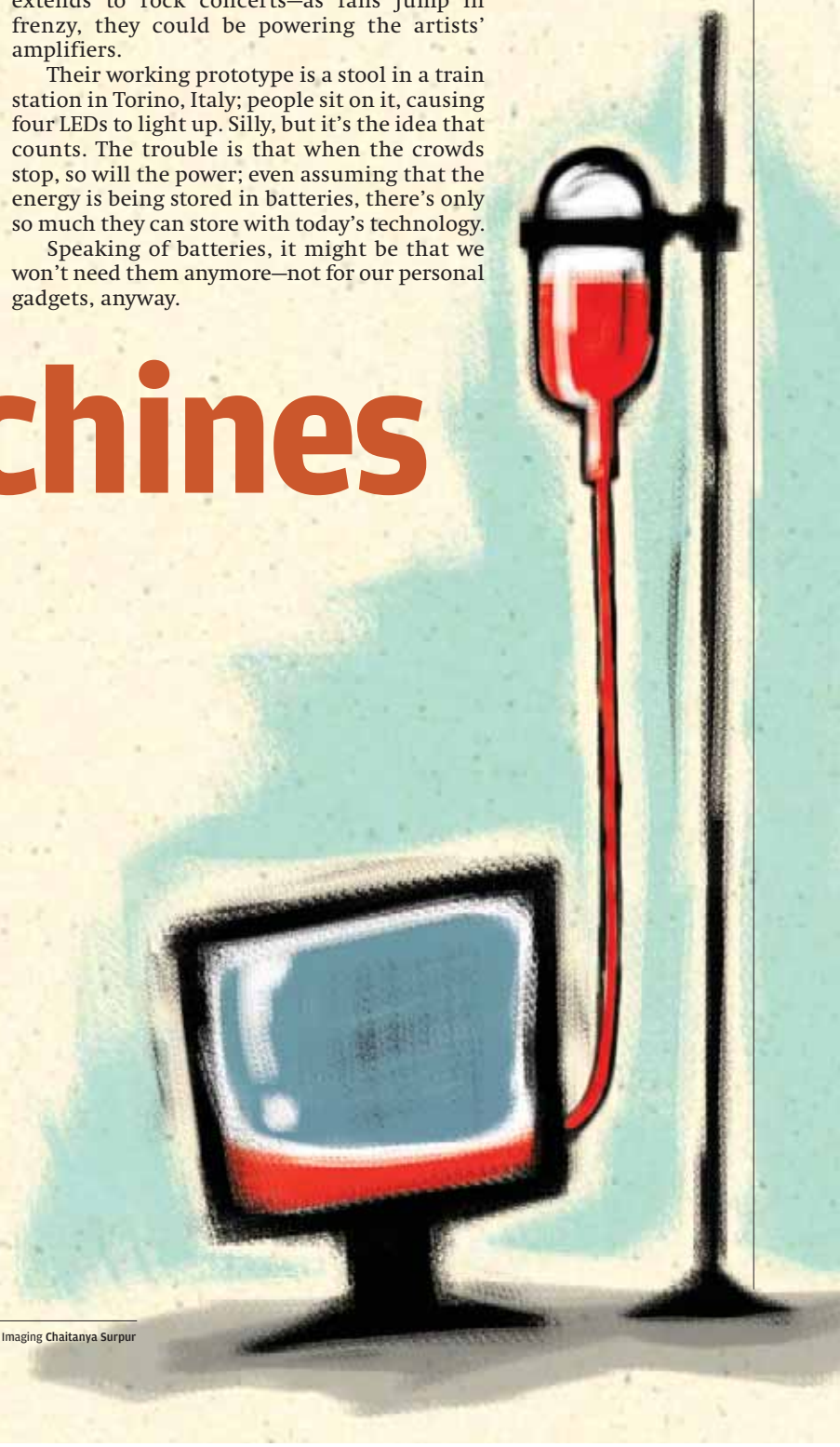
You've probably seen bicycle headlamps powered by the wheels' rotation, which in turn are powered by the cyclist's pedalling. The OLPC Project's XO laptop is powered by a hand-cranked battery charger. Conservation of energy—it goes from one body to another, from one form to another, and makes all this possible. When we walk, we release energy into the ground; nothing happens. Well, nothing immediately obvious, anyway. James Graham and Thaddeus Jusczyk, students at MIT's School of Architecture and Planning, plan to make something happen.

The idea is based on the fact that a single human step can power two 60-watt light-bulbs for a whole second. What if you multiplied this to tens of thousands of people, taking tens of thousands of steps so many times a day? Graham and Jusczyk have the idea of a railway station with movable tiles on the floor—people walk, the tiles get depressed and power a dynamo, which generates electricity. "Crowd Farming," as they call it, will use the movement of crowds—especially at rush hour—to generate power, which can then be used for lighting sign-boards, they say. Get them a large enough crowd (and we have so many of those in India, don't we?), and maybe we can power whole sections of the railway station! The idea also extends to rock concerts—as fans jump in frenzy, they could be powering the artists' amplifiers.

Their working prototype is a stool in a train station in Torino, Italy; people sit on it, causing four LEDs to light up. Silly, but it's the idea that counts. The trouble is that when the crowds stop, so will the power; even assuming that the energy is being stored in batteries, there's only so much they can store with today's technology.

Speaking of batteries, it might be that we won't need them anymore—not for our personal gadgets, anyway.

The Machines



Imaging **Chaitanya Surpur**

How You Can Help

We've mentioned the ESP Game and Google Image Labeler earlier in this article; there are two other games in Luis von Ahn's "Human Computing" initiative that you can play to help computers make the Web a better place:

Phetch (www.peekaboom.org/phetch)
Phetch is like an online treasure hunt, only with images. You find yourself in a group with other users, one of whom is a *describer*; the rest are *seekers*. The describer tells the seekers what kind of image he or she wants to see—"a monkey eating a banana," for instance—and the seekers then use their favourite search engines to hunt down the image. The first seeker to get the right image becomes the next describer.
How it helps: When you play Phetch, you're helping the visually impaired use the web better. When each round is over, the describer's demand is associated with the image that won—much like a caption. So when a visually impaired person is using a text-to-speech converter to read the site that's hosting the image, the caption can be read out to them—"a monkey eating a banana", instead of "monkey.jpg".



Peekaboom (www.peekaboom.org)
Like the others, this game pairs you with a random partner online, and you take your turns as *Peek* and *Boom*. As Boom, you're shown an image and a keyword that represents an object in the image (a family photo, for example, with "boy" as the keyword). You then reveal that part of the image to your partner, Peek, and he or she will start guessing what the keyword is. When Peek gets it right, the round is over, and you switch roles for the next round.
How it helps: Peekaboom is supposed to be used to train computer vision algorithms. Right now, computers recognise objects using basic geometry, but this isn't working too well. If you show a computer lots of images of an object, taken at different sizes and angles, it's possible that they may recognise the object better. This is exactly what you're doing when you isolate objects for your partner to guess. In addition, you're also helping add more labels to the image, hence indirectly contributing to better image searches.

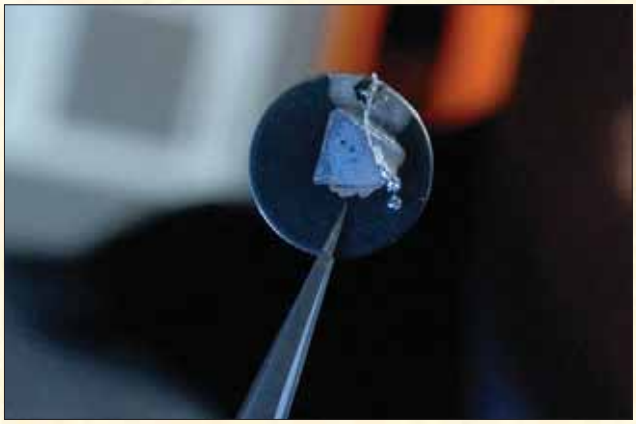
Verbosity (www.peekaboom.org/verbosity)
Think of Verbosity as the online version of word- and phrase-association games like Taboo. You and your partner alternately play the roles of *guesser* and *narrator*. The narrator is given a word ("water", for example), which he or she has to explain to the guesser using clues ("quenches thirst," for example). When the guesser gets it right, roles are reversed.
How it helps: Common sense. We have it, computers don't. By looking at the clues that you give your partner, a computer gets a database of "common sense facts" that we take for granted—like "water quenches thirst." This should cut dow on the time it iakes learning machines to learn the most basic things in the world.

I Vant Yer Blud!

When your body needs energy, it uses the glucose in your blood, which, in turn, comes from the food you eat. Back in 2003, Panasonic's Nanotechnology Research Laboratory developed a prototype device that synthesised the glucose in human blood to generate power, the same way your body does. If it were to synthesise all the glucose, it could theoretically generate 100 watts of power, but that would mean you'd have to be eating constantly to compensate for the loss to your body. To keep the balance, the device won't be allowed to consume too much sugar, thus putting a cap on how much power it'll be able to generate, so don't expect this to power your cell phones and PMPs. So you can't go about killing yourself for louder music just yet.

At the other end of the world, Zhong Lin Wang of the Georgia Institute of technology is working on a "nanogenerator" that will use the flow of human blood to generate electricity. It's based on the principle of *piezoelectricity*—the property of some materials that can convert mechanical energy to electrical, and vice versa. The material in this case is a nanowire gird made of Zinc Oxide; the prototype is stimulated by ultrasonic waves, but according to the professor, they can also be made to react to blood flow and muscle contractions.

At this stage, the device only generates nanoamperes of current—enough only to power, well, nano-devices. Still, there is hope—it's been proved that by increasing the size of the nanowire array, the generator can pump out more current—enough to even power personal electronics.



The nanowire array might end the age of recharging batteries for personal gadgets

Think about it—a cell phone that will die only when you do.

All About You

Perhaps some day Subconscious Computing will advance to a point where data can be fed to your brain and processed without your knowing it. If you don't want to wait that long, you can start contributing to making machines a wee bit smarter right now! Read the box below, go online and get started! ☒

nimish_chandiramani@thinkdigit.com



70 Digital Camera Test



103 Live On The Wide Side



106 Those Little Things

Enhance

Little Helpers

Lightweight programs that make the day-to-day keyboard-and-mouse life just a bit easier—and more productive

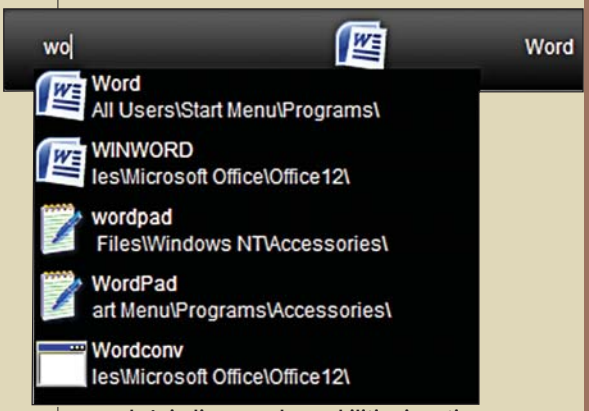
Asfaq Tapia

We become a bunch of happy computer users once we have all the essentials installed—Office (or OpenOffice.org), Firefox / Opera, and you know the rest. Not too many get into looking for programs—specifically little, unobtrusive ones—that help with everyday tasks. For instance: a program that kept all your programs (including itself!) up-to-date... now that would save you the trouble of looking for updates online. Then... something that lets you type in your native tongue (assuming you're familiar with it)? Useful indeed.

We've done some digging for you, and here's what we came up with. Give these programs a shot and see if they're worth the money you spend on them (which is Rs 0.00 each). We're guessing you'll be a happier computer user thereon.



Illustration **Chaitanya Surpur**



Launchy's in-line search capabilities in action

LAUNCHY

www.launchy.net

Here's a lightweight open source program to quickly open any file on your computer. It's as unobtrusive as possible: it's invisible. Press `[Alt] + [Space]` and it pops up. So here's the idea: say you want to open an Excel file buried where no mouse has gone before, begin entering the name of your desired file in the Launchy window, and possible matches will come up. Home in on your file and launch it right from the Launchy window—hence the name!

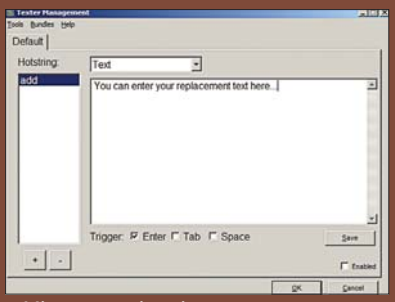
The program learns from past keystrokes, so as you keep using it, you'll find you need to press fewer keys before you find your file. Even if Launchy doesn't find a matching file, it will show you a list of all files that somewhat match what you've typed.

Now Launchy doesn't do black magic (or, to be racially neutral, blue magic). It indexes files, of course. To be able to find files of a certain extension, you need to first index those: for example, if you add the .EXE extension, programs will be indexed. In addition, stuff in the Start Menu is indexed by default.

If you're using this popular program at your workplace, you can index files on your intranet as well. Find Launchy on our March 2007 DVD.

TEXTER

http://tinyurl.com/2ww36b



Adding Hoststrings in Texter

Those things in Word like "December (Press Enter to Insert)" are more of a pain in the behind than anything else. What you need is Texter to enter oft-used text (hence the name). So just assign a word like "addr" to a block of text—like your address—and when you type in "addr", your address is all typed out for you. This saves time, and more importantly, relieves the frustration of doing mindless things.

For the programmers out there: apart from basic text replacement, Texter has a set of predefined variables you can use to generate dynamic content (like the current date). For example, %| will assign the place to where the cursor should return to after text is replaced, as in, if you create a macro with the text block "Digit %| Is The Coolest", the cursor will position itself between "Digit" and "Is". Typing "{Tab}" will insert a tab where you need it. You can even combine variables.

Just to give you an idea of what Texter can do, you can highlight text and paste it elsewhere without having to do a copy-paste operation. You'd have to construct a simple macro: "^c %c {Space}". Here, "%c" is a predefined variable that means "paste clipboard contents along with a pre-defined block of text" to Texter.

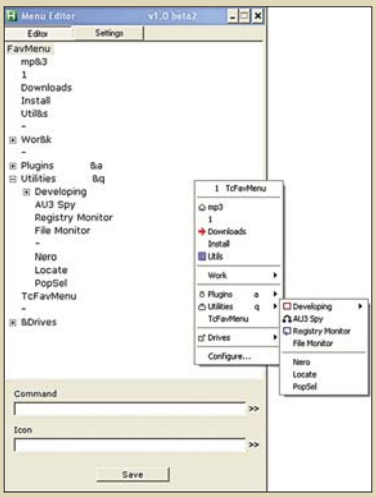
Find Texter on our August 2007 CD.

AUTOHOTKEY

www.autohotkey.com

Now if you need macros for just about any action, you need AutoHotkey. You could use it to replace blocks of text, but going beyond, you could do things like open your browser and several sites under tabs, make multiple directories, and shut down your computer after a download or copy action—in the blink of an eye. AutoHotkey, as you can see, takes macros to a new level.

The program incorporates another one called AutoScriptWriter, which allows you to record macros. These can then be replayed. So you start up this program, press Record, do various actions, and press Stop. Then, playing back the macro will do all those various actions. We created a macro to capture screenshots and save them with IrfanView, in the .TIFF format, on the Desktop. Behind the scenes, AutoScriptWriter creates a macro file that contains the code for what is to be done. Find that macro—and the program itself—on our May 2007 CD.



Looks difficult, but is very easy to use

Naturally, you can write your own macros. Learn about it at **www.autohotkey.com/wiki/index.php?title=AHK_Tutorial.**



The fastest way to find program updates

UPDATE CHECKER

www.filehippo.com/updatechecker

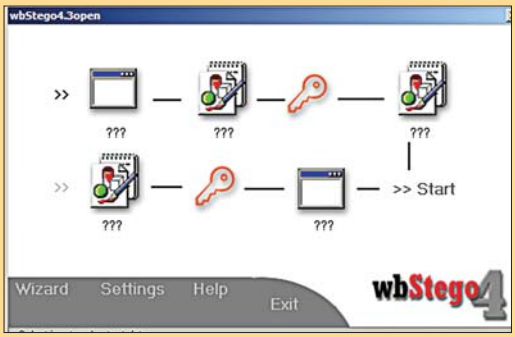
If you like to have all your software updated down to the last decimal, this little tool is most certainly for you. Update Checker runs a quick scan on all the programs on your computer, then opens up a Web page and tells you which ones can be upgraded.

It's not magic: the Update Checker Web site maintains a version number database of programs along with download information, which registered users can update. Upon a scan, Update Checker compares the version numbers there to those of the programs it finds. Next, a Web page with the download information for the new version is opened.

Find Update Checker on this month's CD. Update Checker runs on even Windows 98, provided you have .NET 2.0 framework installed.



The wizard mode is the easiest to use



The flowchart mode of wbStego4open

STEGANOGRAPHY TOOLS

Steganography software is the digital equivalent of invisible ink. It lets you embed data inside other files. Secret data, of course.

So why use steganography—why not just ZIP your files with password-protection? Well, when you have a password-protected file of any sort, there's something to be explained if and when someone (like your mom or boss!) notices it. ("Hmm. So you're using passwords these days, are you? Tell me more...") Besides, passwords aren't completely safe.

With steganography, no-one will even know there's something hidden! Using the technique, you hide your file inside another, known as the carrier file.

Hide In Picture is once such tool: you can embed files into GIF and BMP images. You retrieve your data from the carrier file just by clicking Extract in the program. You can also password-protect the carrier file if you're so paranoid you think only you'll survive, and then embed that into another file... Find Hide In Picture on this month's CD or download it from **http://source-forge. net/projects/hide-in-picture**.

A similar program is wbStego4open. This open-source, cross-platform tool allows you to embed data in BMP, text, HTML, and PDF files! Get this one from **http://wbstego.wbailer.com**. There are stego programs that allow you to embed data in zipped archives too.

wbStego4open has two modes—Wizard and Flowchart. The latter allows users we call "advanced" to embed / extract data, password-protect files, and compress the carrier file, all in one window.

Steganography opens up a cool one top-corporate-boss-to-another way of exchanging secret messages via e-mail. The sender and receiver need to have the same software installed, of course.



Transparent Rainlendar skins are also available

RAINLENDAR

www.rainlendar.net

Across-platform calendar software, Rainlendar is chock-full of all those much-needed everyday features like to-do lists, alarms, search capabilities, and printing support, apart from the expected calendar.

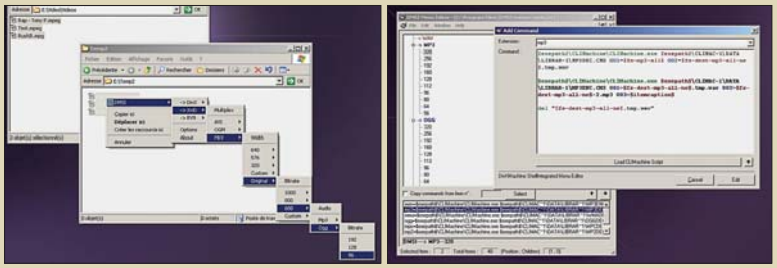
The software uses the official standard for calendar data exchange set by the Internet Engineering Task Force Calendaring and Scheduling Working Group, called iCalendar, so you can easily import and export entries between calendars. You can set up recurrent alarms, to-do entries, and calendar entries to record recurring events like birthdays, anniversaries, or the signing of an attendance register at work.

The Lite version is free; Pro costs – 15 (Rs 850). The difference is that in the Lite version, there is no support for Outlook, Google Calendar, or calendars shared on a network. Both versions support the Lua scripting language, thereby allowing you to extend the calendar's functionality.

Eye-candy comes in the form of the tons of skins available. Find Rainlendar Lite on our May 2007 DVD.

DIVXMACHINE

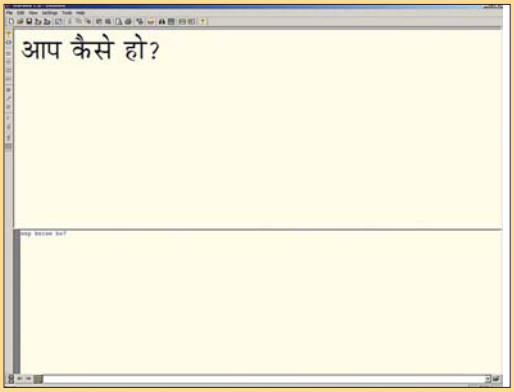
www.divxmachine.com



Change any video to any format using DivXMachine

If your work involves managing many video files and changing their properties, DivXMachine will be downright useful. It integrates into the Explorer shell; when you right-click on an image or video file, it lists a host of formats and resolutions to which you can convert the file. You can select multiple files of the same file-type to be converted at once. Head to **http://www.climachine.com/?lang=en&page=featdmsi** to see what media formats are supported.

The common filters like MP3 to OGG converters, AVI to DIVX are all bundleded with the software. You can select which filters you want to display in the Explorer shell. There are filters available to enhance the clarity of video called Avisynth filters. You can add these to enhance video clarity. DivXMachine lets you build custom Explorer shell menus from scratch using the bundled DMSI Menu Editor. Find DivXMachine on this month's CD.



An example of using Baraha

BARAHA

www.baraha.com

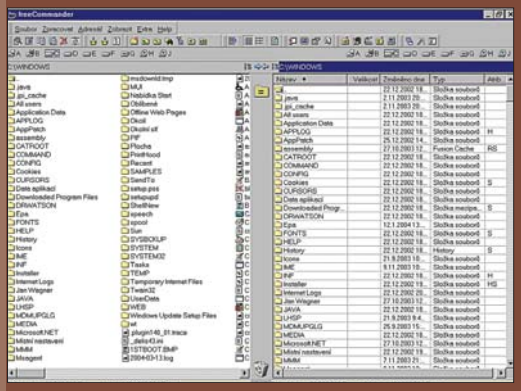
If you blog at Blogger.com, you've noticed that they now let you type Indian words in their native script by spelling them in English. This is called transliteration. For example, typing in "Aap Kaise Ho?" in English will display the words in the Devanagri script. Actually, there's a simple tool that lets you use transliteration technology to type out documents in Word, chat with friends on IM, and so on—in your language. It's called Baraha

With Baraha, you don't need to remember complex keystrokes to get the correct *matra* or letter in place. Just type the words as you would pronounce them in your native language, and they will be reproduced in the correct script on-screen. Baraha supports many Indian languages, and can work with Unicode as well as TrueType fonts. Unicode fonts allow programs to change their shape, size, and rendering; these are the "weird Chinese-looking character" fonts. TrueType fonts are the ones we generally use; they allow designers to define how their font should be rendered in any program, and they look the same on-screen and when printed.

Baraha Direct, bundled with the software, allows you to enter Indian text directly into MS Office applications and PageMaker. It's convenient—an icon in the system tray indicates the language to which the text is being transliterated. You can change the transliteration speed, change the language and change the format of the transliterated text between Unicode and TrueType.

Baraha features "learning" capabilities: it learns the spellings you use for words. For example, if you spell the Hindi word "Ma" as "Maa", Baraha can learn that—so it gets better over time at spelling your words correctly.

Note, however, that Baraha isn't quite perfect. It'll take some getting used to on your part, and some learning on the software's part.



Windows Explorer on steroids

Free Commander

www.freecommander.com

A Windows Explorer alternative that packs a punch, FreeCommander is a portable application that can be used from a CD or USB stick (or from your hard disk, of course). Copy the installation directory to the media and use the program on any computer... just like that!

FreeCommander features a dual-panel window which, divides your screen into two halves. You can open folders in both these panels. If you choose to open more windows in the panel, they are displayed under tabs. You toggle between viewing folders in a column with sub-menus, or in rows. The software can handle archives to open ZIP, CAB, and RAR files. You can also preview images just like in the Explorer shell.

Apart from the usual copy, paste, rename, move, and delete functions, FreeCommander also allows you to delete files for good (shred them). It allows you to change the attributes of any file. While running a search, the software can even look inside compressed archives.

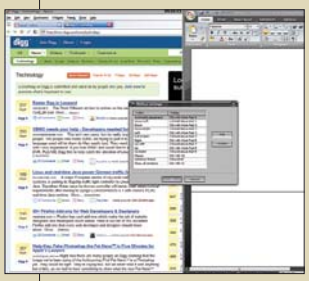
You can assign other programs to FreeCommander for opening specific file-types. For example, freeware like ATViewer, which opens image files, can be downloaded from **http://www.freecommander.com/fc_utilities_en.htm**.

A list of hotkeys you can use with FreeCommander can be found at **http://www.freecommander.com/fc_ShortCuts_en.htm**. Find FreeCommander on our March 2007 DVD. ■

asfaq_tapia@thinkdigit.com

WINSPLIT REVOLUTION

http://reptils.free.fr



Select "Hotkey Settings" from the system tray icon to edit shortcuts

So you have this seventeen inch screen you are very happy with and you are constantly multi-tasking, opening up all those windows on the screen can be a tad confusing. WinSplit Revolution helps you align all those windows on the screen at the click of a button. Of course, you can do this manually too but using the software is much simpler!

If you still want to align your windows manually, the software allows you to snap them into place. Having said that, the auto-alignment ensures that your windows are aligned to the edge of the screen rather than "almost at the edge". To auto align all windows, you press `[Ctrl] + [Alt] + [M]`. To save any open program, `[Ctrl] + [Alt] + [0]`.

A few other options include Windows Fusion, which splits the screen horizontally with the last two opened windows when the `[Ctrl] + [Alt] + [F]` shortcut is used. Pressing `[Ctrl] + [Alt] + [M]`, to use the Mosaic function, you can split the screen in nine parts and have windows in all of them. If you have less than nine windows open, some will be larger and if you have more than nine windows open, the first nine will be tiled. You can also close all windows with the shortcut `[Ctrl] + [Alt] + [C]`. These shortcut keys can be changed too!



Shiny, Sexy, Slick

HERE'S Our PICK

If you'd like, you can point and click; if you'd like, you can get experimental. But you just need to pick a clicker from our annual digital camera shootout.

Imaging **Shrikrishna Patkar**
Photograph **Jiten Gandhi**

Rossi Fernandes

In a digital world, what do you expect of cameras but that they'll be digital? Sure, you have fans of analogue—as in audio equipment, and yes, even with cameras, as in film—but they're a dying breed, and you decide whether that's a good thing or a bad thing. Film cams are a fancy, a different art now. They're just not for you if you're a regular guy or girl!

So here's the deal, as usual: we test them, you buy them! Let's get straight on to telling you what we found after evaluating, very critically, the 31 lucky cameras that made it to this test.

Categories: A Matter Of Price

We only tested point-and-shoot cameras, so the most obvious categorisation is one based on price. First, we set the upper ceiling for this test as Rs 25,000. Second, we set Rs 8,000 as the ceiling for the entry-level cameras. With that in mind, we came up with three categories.

Cameras retailing at under Rs 8,000 cater to newcomers with no serious photography in mind, and who just want a camera for casual shots now and then. Basically, if you're saying, "I just want a camera; and I don't have any special needs in mind," then this is your category. We're calling this the Simple Shooters category.

The second category has cameras between Rs 8001 and Rs 15,000. This includes the mid-range cameras that have better performance but not necessarily the coolest designs, and we're calling this category "A Cut Above." The final group would be cameras priced between Rs 15,001 and Rs 25,000—"The Cream of the Crop" category. Here you'll find cameras with the most advanced features and performance along with style and elegance in one package.

SIMPLE SHOOTERS (BELOW RS 8,000)

It's mostly TECH-COM here, along with lone contenders from iMedia, Premier, and Mustek.

Design

The TECH-COM cameras have a cheap, plasticky feel, but they're light. The buttons are rather clunky, and require some pressure to register a click; the resultant sudden click creates some shake, which often ends up as blur in the photos. Hence one has to be careful and use timer if possible.

The Premier DC6370 is one of the better cameras in terms of design.

Almost every Simple Shooter comes with a pouch and a handle. What you don't get is a charger, which is unfortunate because you'd have to spend anything between Rs 600 and Rs 1200 for a set of rechargeable batteries and a charger.

Features

As you might expect, we saw hardly any advanced features in this category. The features department is where the cams in this category lose out the most when compared with those in the other categories.

The TECH-COM cameras had pretty much the same set of features across all models.

Performance

In our flash test, the TECH-COM 524X PLUS has a fairly large advantage over the 512X PLUS in terms of clarity and colour contrast. The Mustek and the Premier cameras were behind in this test.

Macro photography was close to impossible in comparatively low light, and this goes for all the cameras in this group.

Accurate focusing is the main issue, followed by long-duration shutter speeds, which is the cause of most of the blur. The TECH-COM 512X PLUS and the iMedia DC-5360S are marginally better than the rest, though.

Outdoor photos, naturally, were much easier to shoot. The colour rendition of the TECH-COM cameras were very similar, but the Mustek MDC530 showed a very light pinkish red instead of a dark red.

In our indoor studio lights test, the Premier DC6370 brought up some very bright fluorescent green in some of the plant photos, and captured the yellow pencil as a pale green, and the orange as... you get the idea.

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TECH-COM DSC-524X PLUS
Decent camera with no noticeable flaws

Value

The prices of the seven Simple Shooters were all within Rs 1,000 of each other. The TECH-COM 601 was quite undoubtedly the worst of the lot, clearly because of the lack of basic functions such as zoom and focusing... no focus means there isn't even a half-press button: you directly click the photo!

The best overall performance here came from the TECH-COM 524X PLUS, priced just Rs 500 more than the cheapest camera of the lot, the iMedia DC-5360S.

Consider the 524X if you want the cheapest decent-performing camera in this test. If you want to save Rs 150, which will just about buy you a pizza, get the TECH-COM 512X PLUS.

A CUT ABOVE (RS 8,001 TO RS 15,000)

These cameras are most likely what you'd walk out of a store with. We saw some decent performance here, as well as some superior features integrated. This segment comprises of 12 cameras and better-known brands enter the scene.

Design

The design of the Samsung S850 is anything but fancy. The screen is pretty large and pretty crisp as well, even in daylight. The buttons are a little clunky, and the zoom has to be controlled using a little flat notch at the back of the camera, which has to be moved up and down to zoom in and out. This will take some getting used to.

The Canon PowerShot(PS) A450 and PowerShot A460 have the old-fashioned long, blocky design, and might not be the best to carry around in your pocket. The Kodak and

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Scoreboard — Below Rs 8000

BRAND MODEL	iMedia DC-5360S	Mustek MDC530	Premier DC6370	TECH-COM DSC-512X PLUS	TECH-COM DSC-520
					
Price (Exclusive Of All Taxes)	Rs 4,790	Rs 4,900	Rs 5,790	Rs 5,100	Rs 4,900
+	Very inexpensive	Average outdoor photos	Somewhat attractive design	Fairly feature packed	Lightweight
-	Minimal features	Poor video quality	Poor colour rendition	Slightly bulky in size	Average macro shot
Total (Out of 100)	52.99	50.82	46.90	55.80	54.34
Features (Out Of 40)	17.90	17.20	17.10	19.70	18.70
Performance (Out Of 40)	17.09	16.02	14.91	19.19	18.04
Price Index (Out Of 20)	18.00	17.60	14.89	16.91	17.60
Features					
Maximum Image Resolution (Pixels)	2560 x 1920	2560 x 1920	2816 x 2112	2560 x 1920	2576 x 1932
CCD Sensor	5 MP	5 MP	6 MP	5.19 MP	5 MP
Optical Zoom	3x	3x	3x	3x	3x
Digital Zoom	4x	4x	4x	5x	4x
ISO Setting	50 - 200	50 - 200	64 - 200	100 - 400	80 - 400
Shutter Speed Range (Min - Max) (Sec)	2 - 1/1000	NA	NA - 1/1000th	8 - 1/1000	NA
White Balance Settings (No. Of Settings)	6	5	4	5	4
Macro Focus Range	5 cm	6 cm	5 cm	10 cm	NA
Autofocus (Y/N)	Y	Y	Y	Y	Y
Manual Focus (Y/N)	N	N	N	N	N
Number of Metering Modes	2	2	2	2	2
Integrated Flash / Ext. Flash Support (Y/N)	Y / N	Y / N	Y / N	Y / N	Y / N
LCD Viewfinder Size	2.36"	2.5"	2.4"	2"	2"
LCD Viewfinder Resolution (Pixels)	115,200	115,000	110,000	110,000	NA
Dimensions (W x H x D) (cm)	9.1 x 6.2 x 2.9	9.1 x 6.19 x 2.7	8.8 x 6 x 2.6	10.8 x 5.65 x 3.8	9.6 x 6.2 x 2.75
Weight	134 gm	140 gm	130 gm	142 gm	90 gm
PictBridge (Y/N)	Y	Y	Y	Y	Y
Memory Types Supported	SD	SD	SD/MMC	SD/MMC	SD/MMC
Inbuilt Memory	32 MB	12 MB	16 MB	32 MB	32 MB
Video Capture - Audio (Y/N) / Resolution	Y / 640 x 480	Y / 320 x 240	Y / 320 x 240	Y / 640 x 480	Y / 640 x 480
A/V out (Y/N)	N	Y	Y	Y	Y
Battery Charger Included (Y/N)	N	N	N	N	N
Battery Form Factor (If Applicable)	AA	AA	AA	AA	AA
Image Stabilisation (Y/N)	N	N	N	N	N
Face Detection (Y/N)	N	N	N	N	N
Burst mode (Y/N)	N	N	N	Y	Y
Slow Sync Flash (Y/N)	N	N	N	Y	N
Accessories	Pouch, Hand-strap	A/V cable, Pouch, Hand-strap	A/V cable, Pouch, Hand-strap	USB-A/V cable, Pouch, Hand-strap	USB-A/V cable, Pouch
Performance					
Studio Setup (Out Of 10)	4.29	4.04	3.96	5.04	3.86
Studio Setup - Flash (Out Of 10)	4.75	3.00	3.00	4.50	4.75
Macro (Out Of 10)	4.25	4.25	4.00	4.50	3.63
Outdoor (Out Of 10)	4.00	4.50	3.67	4.67	5.08
Portrait (Out Of 10)	4.00	3.75	3.50	5.00	4.50
Video (Out Of 10)	4.75	3.50	3.75	4.75	5.00

Nikon cameras generally have a decent finish . It is the plastic material that gives them the cheap look. The Kodak V803, however, is sturdier, and is one of the classier-looking cameras of the pack.

The menu layouts don't change much from camera to camera within a single brand. You only find major changes when a new generation comes through. The Sony W55 is a comparatively old camera, and its menu layout and colour scheme is the same as that found on Sony cameras pre-2007.

Features

The Samsung S850 is a really feature-packed camera with some high-end specs for its category: 5x optical zoom, an 8.1 megapixel sensor, and a nice, large screen; a wide range of ISO ratings (50-1600) and shutter speeds; the 1 cm spec allows you to get unimaginably close to your subject; and the manual focus allows for some really creative shots.

The Nikons weren't impressive on the performance front, but they have some unique features inbuilt. One such is blur detection, which

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	TECH-COM DSC-524X PLUS	TECH-COM DSC-601
		
	Rs 5,250	Rs 4,975
	Good features and performance Average macro performance	Lightweight No focus or optical zoom
	56.12	51.18
	20.40	16.90
	19.29	16.95
	16.42	17.33
	2560 x 1920	2864 x 2160
	5.3 MP	6.18 MP
	3x	NA
	5x	5x
	100 - 400	100 - 400
	8 - 1/1000	8-1/1000
	6	6
	10 cm	20 cm
	Y	Y
	N	N
	2	2
	Y / N	Y / N
	2.4"	2"
	110,000	115,000
	9.99 x 5.54 x 3.52	9.55 x 5.22 x 2.97
	140 gm	90 gm
	Y	Y
	SD/MMC	SD/MMC
	32 MB	32 MB
	Y / 640 x 480	Y / 640 x 480
	Y	Y
	N	N
	AA	AA
	N	N
	N	N
	N	N
	Y	Y
	USB-A/V cable, Pouch, Hand-strap	USB-A/V cable, Pouch, Hand-strap
	5.21	5.00
	5.00	4.75
	3.63	2.75
	4.75	3.42
	4.75	4.75
	4.75	4.50

checks the image for blur once the photo has been shot, and asks you whether you still want to save the photo. So if you're on a clicking spree, you might have to keep saying "yes" every time. Bonus or irritant?

Performance

We got some pretty impressive shots from the Kodak V803. The crispness throughout the images was great; the macro shots were very easy to focus and the results were brilliant as well. The colours were a tiny bit on

How We Tested

We conducted a barrage of tests on the cameras with the main focus being quality. The primary test scene consisted of objects of a spectrum of colours and patterns. As you can see from the photograph, we had everything from bottles and cans to colour pencils. All were arranged on a table with a thunder-grey sheet on top. We used daylight simulation lights to illuminate the scene. The room was darkened to keep the conditions even. We placed the tripod at a suitable distance, and took the shots using a timer to provide more or less uniform situations for all the cameras. We carried out all the tests at the highest resolution possible, and the quality set to Best. We conducted all the tests—except the macro and portrait—at Auto settings.

To compare the photos, we used the Nikon D200 as a reference for higher-end cameras.



Here's a look at our reference shot

Quality

We conducted the quality test with the lights on; captured the test photo with the flash turned off. We examined and compared fine details. Some of these details were small text on a motherboard, as well as CPU socket pins and PCI slot patterns. Other things observed were the texture of the blue cloth and the text on the globe. Finer aspects included how well the specular effect on the bottles and the globe would turn out in the photos. There was also emphasis laid on the shadows on the motherboard panel and the details in the darker areas.

Macro

The macro shots were taken with the macro mode enabled. It involved us taking the closest possible shots to the colour pencils. We looked at the ability of the camera to focus properly and the amount of depth of field blur we could get.

Flash

For the flash test, we turned off all the lights and had the camera focus on the scene with whatever little ambient light there was. This shot helped us gauge how intense the flash was and how much the colours and shades degraded because of it.

Outdoors

The outdoor shots were taken at some 13 different locations around our office premises. They were mostly photos of plants and of the hills in the background. We used different zoom settings to shoot distant areas. Macro shots were taken of plants and some of metal piping.

Portrait

We shot a photo of an individual against daylight. This test photo was used to rate how well skin tones and gradients were represented.

Video

We took all our videos at the best resolutions supported. We recorded a short video clip to gauge the quality of the video in terms of crispness and colour. We also considered the resolution and frame rate of the video during the rating process.

Scoreboard

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Rs 8,001 to 15,000

BRAND MODEL	Canon PowerShot A450	Canon PowerShot A460	Canon PowerShot A560	Kodak EasyShare C653	Kodak EasyShare C743
					
Price (Exclusive Of All Taxes)	Rs 7,995	Rs 8,495	Rs 14,995	Rs 7,999	Rs 9,999
+	Great value for money	Good outdoor photo quality	Great quality and colours	Inexpensive	Lightweight
-	Bulky design	Bulky design	Expensive	Low on features	Bad macro performance
Total (Out Of 100)	57.37	57.06	53.74	55.30	51.48
Features (Out Of 33)	18.07	18.40	19.47	16.50	16.09
Performance (Out Of 52)	25.80	25.95	27.07	25.31	24.60
Price Index (Out Of 15)	13.50	12.71	7.20	13.49	10.79
Features					
Maximum Image Resolution (Pixels)	2592 x 1644	2592 x 1644	3072 x 2304	2848 x 2144	3072 x 2304
CCD Sensor	5 MP	5 MP	7.1 MP	6.1 MP	7.1 MP
Optical Zoom	3.2x	4x	4x	3x	3x
Digital Zoom	4x	4x	4x	5x	5x
ISO Setting	80 - 400	80 - 400	80 - 1600	80 - 1250	80 - 400
Shutter Speed Range (Min - Max) (Sec)	15 - 1/2000	15 - 1/2000	15 - 1/2000	4 - /1400	4 - 1/1400
White Balance Settings (No. Of settings)	6	6	6	4	3
Macro Focus Range (cm)	1	1	5	10	13
Autofocus (Y/N)	Y	Y	Y	Y	Y
Manual Focus (Y/N)	N	N	N	N	N
Number of Metering Modes	3	3	3	2	2
Integrated Flash / Ext. Flash support (Y/N)	Y / Y	Y / Y	Y / Y	Y / N	Y / N
LCD Viewfinder Size (Inches)	2	2	2.5	2.4	2.4
LCD Viewfinder Resolution (Pixels)	86,000	86,000	115,000	NA	NA
Dimensions (W x H x D) (cm)	10.6 x 5.18 x 4.02	10.6 x 5.18 x 4.02	9.12 x 6.4 x 4.31	8.9 x 6.6 x 3.5	9.22 x 6.57 x 3.24
Weight	165 gm	165 gm	165 gm	143 gm	145 gm
PictBridge (Y/N)	Y	Y	Y	Y	Y
Memory Types Supported	SD / SDHC / MMC	SD / SDHC / MMC	SD / SDHC / MMC	SD / MMC	SD / MMC
Inbuilt Memory (MB)	16 MB (card)	16 MB (card)	16 MB (card)	32 MB	32 MB
Video Capture - Audio (Y/N) / Resolution	Y / 640 x 480	Y / 640 x 480	Y / 640 x 480	Y / 640 x 480	Y / 640 x 480
A/V out (Y/N)	Y	Y	Y	Y	N
Battery Charger Included (Y/N)	Y	Y	Y	Y	Y
Battery Form Factor (If Applicable)	AA	AA	AA	AA	AA
Image Stabilisation (Y/N)	N	N	N	N	N
Face Detection (Y/N)	N	N	Y	N	N
Burst Mode (Y/N)	Y	Y	Y	Y	Y
Slow Sync Flash (Y/N)	Y	Y	Y	N	N
Accessories	A/V cable, Hand-strap	A/V cable, Hand-strap	A/V cable, Hand-strap	Hand-strap	Hand-strap
Performance					
Studio Setup (Out Of 10)	5.14	5.07	5.25	5.11	5.07
Studio Setup - Flash (Out Of 10)	4.75	4.75	4.50	4.50	4.00
Macro (Out Of 10)	4.50	4.50	4.75	4.13	4.13
Outdoor (Out Of 10)	5.08	5.25	5.00	4.92	4.75
Portrait (Out Of 10)	6.00	6.00	6.50	5.00	5.00
Video (Out Of 10)	4.00	4.00	5.25	4.75	4.50

the aggressive side, though. The Samsung S850; what was most impressive about the S850's performance was the crisp and bright photos while zooming in the studio light setup. Almost all the other cameras gave us trouble while zooming to the limit. The images almost always ended up rather dark.

The Canon PowerShot A450 and A460 suffered mostly from their inferior resolutions, though the colour representation here was pretty good. The Kodak cameras in general gave us over-bright colours—different from the more natural, neutral colours of the Canons.

Value

The best overall performance for this category comes from the Samsung S850. The price tag is Rs 14,490, though—pretty high.

The Canon A450 is a steal of a buy: the 5 megapixels might be a bit of a let-down for some, but where it loses out on features, it makes up with its impressive pricing of just Rs

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	Kodak EasyShare C763	Kodak EasyShare V803	Nikon COOLPIX L10	Nikon COOLPIX L11	Samsung L700	Samsung S850	Sony Cyber-shot DSC-W55
							
	Rs 10,999	Rs 14,999	Rs 8,900	Rs 10,900	Rs 13,990	Rs 14,490	Rs 14,990
	Pretty compact design Poor performance	Attractive design Poor value for money	Lightweight Washed out colours	Unique features Relatively bad pricing	Decent LCD Poor value for money	Amazing zoom quality Average Styling	Compact design Relatively expensive
	50.00	52.16	53.65	51.30	53.62	58.88	51.73
	16.17	17.57	17.66	17.66	20.79	24.92	17.57
	24.02	27.39	23.86	23.74	25.12	26.51	26.96
	9.81	7.20	12.13	9.90	7.71	7.45	7.20
	3072 x 2304	3264 x 2448	2560 x 1920	2816 x 2112	3072 x 2304	3264 x 2448	3072 x 2304
	7.1 MP	8 MP	5 MP	6 MP	7.2 MP	8.1 MP	7.2 MP
	3x	3x	3x	3x	3x	5x	3x
	5x	4x	4x	4x	5x	5x	2x
	80 - 800	80 - 1600	64 - 800	64 - 800	50 - 1600	50 - 1600	100 - 1000
	4 - 1/1400	8 - 1/2000	4 - 1/1000	4 - 1/1000	15 - 1/2000	15 - 1/2000	1 - /2000
	3	4	5	5	6	6	5
	10	5	15	15	5	1	2
	Y	Y	Y	Y	Y	Y	Y
	N	N	N	N	N	Y	N
	2	3	1	1	2	3	3
	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / Y
	2.5	2.5	2	2.4	2.5	2.5	2.5
	NA	154,000	153,000	115,000	230,000	230,000	115,000
	9.0 x 6.0 x 2.3	10.3 x 5.45 x 2.5	8.95 x 6.05 x 2.6	8.95 x 6.05 x 2.7	9.69 x 5.68 x 2.05	10.4 x 6.36 x 2.48	8.9 x 5.7 x 2.3
	130 gm	141.5 gm	115 gm	124 gm	130 gm	172 gm	147 gm
	Y	Y	Y	Y	Y	Y	Y
	SD / MMC	SD / MMC	SD / SDHC	SD	SD / MMC / SDHC	SD / MMC / SDHC	Memory Stick Duo / Pro Duo
	32 MB	32 MB	7 MB	7 MB	20 MB	20 MB	56 MB
	Y / 640 x 480	Y / 640 x 480	Y / 640 x 480	Y / 640 x 480	Y / 640 x 480	Y / 800 x 592	Y / 640 x 480
	Y	Y	N	Y	Y	Y	Y
	Y	Y	N	N	Y	N	Y
	Li-ion	Li-ion	AA	AA	Li-ion	AA	Li-ion
	N	N	N	N	Y	Y	N
	N	N	Y	Y	Y	Y	N
	Y	Y	Y	Y	N	Y	Y
	N	N	Y	Y	Y	Y	Y
	Custom camera insert, Hand-strap	Custom camera insert, Hand-strap	Hand-strap	A/V cable, Custom camera insert, Hand-strap	A/V cable, Hand-strap	A/V cable	USB-A/V Cable, Hand-strap
	4.54	5.61	4.54	4.43	4.93	5.54	5.5
	4.00	4.75	5.00	5.00	4.50	5.75	5.75
	4.13	5.38	4.38	4.50	4.38	4.75	5.38
	4.92	5.00	4.67	4.67	5.08	5.00	5.25
	5.75	5.75	4.50	4.50	4.50	4.00	4.5
	4.00	5.00	4.50	4.50	4.75	5.00	4.5

Busting More Myths

Larger Megapixel = Better camera? Not always the case. All the visual data recorded on a digital camera comes from the sensor. The non-DSLR cameras we see have a much smaller sensor as compared to the ones on an SLR. So a 5MP D-SLR's CMOS is actually much better than a 5MP CCD sensor of point-and-shoot cameras.

Increasing megapixels don't mean the sensor size has increased as well.

For a fixed sensor size, megapixel ratings can change!

The other confusion is regarding the resolution increase of the image if you increase the megapixel value. Megapixels are used to measure the number of pixels: 1 megapixel = 1,000,000 pixels (1000 x 1000 pixels). The only improvement you're going to find is the marginal increase to the width and height of the image.

So if you see a camera with a higher megapixel rating than yours, don't think of it as a huge improvement in quality.

7,995. The performance was very close to that of the Samsung S850. It secures second place, a little ahead of the Canon PowerShot A460. These two are pretty much the same except for the zoom. The A460 has 4x optical zoom, as compared to the 3x of the A450. The price difference is about Rs. 500.

A major disappointment here was Nikon. The L10 and the L11 are almost identical in terms of specs and also in performance as we tested them.

The performance isn't spectacular, but if you're looking for a very compact camera, look at the Sony W55.

THE CREAM OF THE CROP (RS 15,001 TO RS 25,000)

This group is dominated by Canon. Then there are Sony and Samsung cameras, as well as a lone Kodak.

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Design

Samsung's i70 has a neat sliding mechanism similar to cell phones. Push the back panel to the left and it slides smoothly into place, and turns itself on. The buttons are flat and don't give any feedback. The zoom is controlled by similarly-designed buttons.



Samsung S850
Quality zoom but not the best design

Although the Canon TX1's vertical design is well-suited for camcorder-like use, it's not quite perfect. The index finger ends up where the camera's lens pops out. The battery slot panel is way too flimsy. The foldable 1.8-inch screen is too tiny for you to be able to make out anything. The camera does have a sturdy feel to it, with fat, chunky buttons for recording, including a dedicated button for recording video.

The screen on the Canon A640 is connected to a hinge that allows you to rotate it freely. This is particularly useful in turning the screen on its back and protecting it from scratches when not in use. The complaint about the A640 is the four AA batteries needed. The A640, although very well-built, is one of the heaviest cameras we tested.

The other well-built camera here is the titanium-body Canon IXUS 900 Ti, which is particularly compact.

The Kodak V1003 looks like its sibling, the V803, from the earlier category. It has similar smooth curves and a good glossy finish.

Both the Sony cameras—the W90 and the T100—are well-designed, flat cameras that can fit in a shirt pocket. The menus have the new user-friendly look, grey with orange highlighted icons and smoother fonts—some of the nicest-looking menus.

Features

The Canon TX1 is unique; it doubles up as a good HD camcorder, and can record video at 1280 x 720 (720p). You would require a sizeable memory card to be able to record a video of decent length. The quality of the video isn't particularly great, it must be said.

Controlling the Samsung i7 is the ultimate in ease; it has a touchscreen that allows you to select a displayed feature and proceed to more advanced options within that feature. This is a happy departure from the multiple button-press sequences to do the simplest of tasks.

Features like image stabilisation and face detection were present on most of the cameras; the Kodak V1003 and the Canon A640 missed out.

Unfortunately, only the Canon A710 IS, A640, and the A570 IS have manual focus.

Performance

Canon's top line-up performed very well in general. Some of the best macros we shot throughout the test were with the Canon A640, A710 IS

The Sony Cyber-shot DSC H7

In addition to what we've reviewed above, we also received the Sony DSC H7—a slightly different breed of digital camera, one that lies between a point-and-shoot camera and a digital SLR. Some people call such cameras pseudo-SLRs or semi-SLRs; some others call them ultrazooms. They do look very similar to SLRs, but are smaller.

The H7, like most other cameras of its kind, gives one complete manual control as well as semi-automated settings like the Aperture and Shutter priority, which allow you to set a fixed aperture and shutter speed—the camera changes the others parameters accordingly for proper photos.



Whereas most point-and-shoot cameras are stuck with 3x to 4x zoom, the DSC H7 is an 8MP camera with a tremendous 15x optical zoom (31 to 465 mm equivalent). The most impressive part is being able to zoom and take photos of objects and people some 100 to 200 metres away and get details you can't see with your eyes. We did run, on the H7, the same chain of tests that we used for the other cameras. The quality of the photos was more or less at par with the Rs 15000—Rs 25,000 group of cameras. Colours seemed a tiny bit on the darker side. At maximum zoom, there was a fair bit of degradation in quality. Holding the camera still at maximum zoom is another issue with such cameras.

There have been some improvements apart from the megapixel and zoom having been pushed up. The batteries are now Li-ion based, instead of AA NiMH cells. The menus are more user friendly.

If you think about it, the H7 is probably more practical than a SLR; it's much quicker to get running. There is no changing of lenses for the right kind of shot. You can use the manual controls to take the photos—like an SLR—or you can switch to the complete Auto mode if you're in a hurry, and use it like a point-and-shoot camera.

Getting the kind of flexibility the H7 provides on even a D-SLR is a very costly affair. At Rs 22,990, this camera is cheaper than the cheapest D-SLR you can buy today. Unfortunately, there is a downside to all the features and performance. Battery consumption is a little more with such cameras because of the larger motor movements required to move the bulkier lens mechanism. You also end up with a bulkier camera, which can't be shoved into a pocket. The camera is great for any photography enthusiast who can't afford to buy a good D-SLR, or a lens that would be required to match the performance of the DSC H7.

and A570 IS. The Canons took the top five spots in the overall performance figures.

The Canon IXUS 900 Ti didn't give us very good macro shots, but its outdoors colours were very good. Video quality was good at the highest resolution—1024x768 at 15fps—as well as at the standard 640x480 resolution. Skin tones were pretty neutral, too.

In this category, Samsung appears to have focused more on features than performance. The performance scores suffered mostly because of the colours, although the detail and crispness was more or less there. With the NV10, the colours were too intense, and with the i7 and i70, the images looked a bit faded.

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Canon PowerShot A570 IS
Great performance and even greater value for money!

Glossary

Aperture: The opening through which light enters the camera. The larger the aperture, the more light goes in, which results in a brighter image. The F-Stop number, or F-Number, is used to denote the size of the aperture. For example, f2.8 denotes a larger aperture than f8.

Shutter Speed: The duration for which the shutter is left open. It is denoted in seconds, like 1/1000th of a second, 1/30th of a second, etc. The shorter the duration, the lower the amount of light entering the camera. A longer shutter speed will give you brighter images, but if your hand shakes, you might end up with blurred images.

ISO Rating: ISO or ASA was traditionally used to denote the sensitivity of the film in film cameras. The higher the ISO-equivalent value, the more sensitive the sensor is to light. Higher ISO values add a lot of grainy noise to the images as compared to low values. Higher ISO settings are preferable for low-light scenarios and lower ISO settings for brighter conditions.

EXIF: Exchangeable Image File Format. This is a tag you'll find in file formats like JPEG. Digital cameras use this tag to store information about the camera and the photo taken such as shutter speed, aperture size, ISO sensitivity, flash, and more.

Kodak's V1003 wasn't too good in the colour department, either—the outdoors flowers showed up more pink than red.

Value

In a category where one tends to splurge, the best camera to buy in terms of value is also one of the cheapest in the category: the Canon PowerShot A570 IS. It has all the features expected from a top-end camera, and it fares pretty close to the top-spot cameras in terms of performance as well.



Scoreboard

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BRAND MODEL	Canon PowerShot A570 IS	Canon PowerShot A640	Canon PowerShot A710 IS	Canon Digital IXUS 900 Ti	Canon PowerShot TX1
					
Price (Exclusive Of All Taxes)	Rs 15,995	Rs 20,995	Rs 18,995	Rs 24,495	Rs 24,495
+	Good performance	Sturdy design	Superior optical zoom	Great performance	Great video performance
-	Lacking in macro	Requires 4 AA Batteries	Dark images when zoomed	Expensive	Awkward design
Total (Out Of 100)	70.02	64.85	67.90	65.32	63.56
Features (Out Of 35)	25.20	22.31	24.33	22.23	23.45
Performance (Out Of 55)	35.82	35.68	36.00	37.22	34.23
Price Index (Out Of 10)	9.00	6.86	7.58	5.88	5.88
Features					
Maximum Image Resolution (Pixels)	3072 x 2304	3648 x 2736	3072 x 2304	3648 x 2736	3072 x 2304
CCD Sensor	7.1 MP	10 MP	7.1 MP	10 MP	7.1 MP
Optical Zoom	4x	4x	6x	3x	10x
Digital Zoom	4x	4x	4x	4x	4x
ISO Setting	80 - 1600	80 - 800	80 - 800	80 - 1600	80 - 1600
Shutter Speed Range (Min - Max) (Sec)	15 - 1/2000	15 - 1/2500	15 - 1/2000	15 - 1/2000	15 - 1/2500
White Balance Settings (No of settings)	7	7	7	6	6
Macro Focus Range (cm)	5	1	1	5	10
Autofocus (Y/N)	Y	Y	Y	Y	Y
Manual Focus (Y/N)	Y	Y	Y	N	N
Number Of Metering Modes	3	3	3	3	3
Integrated Flash / Ext. Flash Support (Y/N)	Y / Y	Y / Y	Y / Y	Y / Y	Y / N
LCD Viewfinder Size (Inches)	2.5	2.5	2.5	2.5	1.8
LCD Viewfinder Resolution (Pixels)	115,000	115,000	115,000	230,000	115,000
Dimensions (W x H x D) (cm)	8.95 x 6.43 x 4.28	10.94 x 6.6 x 4.9	9.75 x 6.65 x 4.12	9.12 x 9.96 x 2.82	8.88 x 5.99 x 2.90
Weight	175 gm	245 gm	210 gm	165 gm	220 gm
PictBridge (Y/N)	Y	Y	Y	Y	Y
Memory Types Supported	SD/SDHC/MMC	SD/SDHC/MMC	SD/SDHC/MMC	SD/SDHC/MMC	SD/SDHC/MMC
Inbuilt Memory (MB)	16 MB (card)	32 MB (card)	16 MB (card)	32 MB (card)	32 MB (card)
Video Capture - Audio (Y/N) / Resolution	Y / 640 x 480	Y / 640 x 480	Y / 640 x 480	Y / 1024 x 768	Y / 1280 x 720
A/V out (Y/N)	Y	Y	Y	Y	Y
Battery Charger Included (Y/N)	Y	Y	Y	Y	Y
Battery Form Factor (If Applicable)	2xAA	4xAA	2xAA	Li-ion	Li-ion
Image Stabilisation (Y/N)	Y	N	Y	Y	Y
Face Detection (Y/N)	Y	N	N	Y	Y
Burst Mode (Y/N)	Y	Y	Y	Y	Y
Slow Sync Flash (Y/N)	Y	Y	Y	Y	Y
Accessories	A/V cable, Hand-strap	A/V cable, Hand-strap	A/V cable, Hand-strap	A/V cable	A/V cable, Hand-strap
Performance					
Studio Setup (Out Of 10)	6.57	6.50	6.54	7.04	5.89
Studio Setup - Flash (Out Of 10)	6.00	6.50	6.50	6.25	5.50
Macro (Out Of 10)	5.88	6.50	6.63	5.50	5.25
Outdoor (Out Of 10)	6.58	6.58	6.42	6.83	6.00
Portrait (Out Of 10)	7.00	6.50	7.00	7.50	7.25
Video (Out Of 10)	6.50	6.25	6.50	6.50	7.50

Contact Sheet — Digital Cameras

Brand	Company	Phone	E-mail
Canon	Canon India Pvt. Ltd.	1800-345-33-66	info@canon.co.in
Kodak	Kodak India Pvt. Ltd.	022-66416300	contactindia@kodak.com
iMedia / Premier	Mediatech India Distribution P. Ltd.	022-26361111	digit@mediatechindia.com
Nikon	Inter Foto India Pvt. Ltd.	022-24925151/2498 5751	jpa@interfotoindia.com
Samsung	Samsung India Electronics P. Ltd.	011-41511234	jitender.c@samsung.com
Sony	Sony India	1800-11-11-88	sonyindia.care@ap.sony.com
TECH-COM / Mustek	Shree Sagarmatha Distributors Pvt. Ltd.	011-26428541 / 9810287270	techcom@airtelbroadband.in

The next-best buy would be the Canon A710 IS—the one with the 6x optical zoom. The price for this takes it beyond the price of the A570 IS by about Rs 3,000.

Those who want good performance and also a compact and stylish looking design will find that the Canon IXUS 900 Ti is the right choice.

The Sony W90 and W100 would also be suitable candidates, although their performance numbers cannot not be compared to the Canons in general.

	Kodak EasyShare V1003	Samsung i7	Samsung i70	Samsung NV10	Sony Cyber-shot DSC-T100	Sony Cyber-shot DSC-W90
						
	Rs 17,999	Rs 24,990	Rs 23,990	Rs 20,990	Rs 24,990	Rs 19,990
	Attractive design Low on features	Easy to use touch screen Expensive	Unique slider design Clunky buttons	Touch sensitive buttons Pretty heavy	Large screen, Compact design Expensive	Light weight High contrast colours
	58.91	62.02	60.16	61.11	63.10	63.10
	18.73	24.15	23.10	22.84	23.45	22.05
	32.18	32.11	31.06	31.42	33.89	33.85
	8.00	5.76	6.00	6.86	5.76	7.20
	3648 x 2736	3072 x 2304	3072 x 2304	3648 x 2736	3264 x 2448	3264 x 2448
	10.16 MP	7.2 MP	7.2 MP	10.1 MP	8 MP	8.1 MP
	3x	3x	3x	3x	5x	3x
	4x	5x	5x	5x	2x	2x
	80 - 1600	80 - 1600	80 - 1000	100 - 1000	80 - 3200	100 - 3200
	8 - 1/2000	16 - 1/2000	16 - 1/2000	15 - 1/1500	1 - 1/1000	1 - 1/1600
	4	6	6	6	7	7
	6	1	1	4	1	4
	Y	Y	Y	Y	Y	Y
	N	N	N	N	N	N
	4	4	4	3	3	3
	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N
	2.5	3	3	2.5	3.0	2.5
	154,000	230,000	230,000	230,000	230,000	115,000
	10.3 x 5.45 x 2.5	10.05 x 6.04 x 2.22	8.97 x 6.1 x 2.15	9.65 x 6 x 1.85	9.18 x 5.92 x 2.23	9.1 x 5.8 x 2.29
	141.5 gm	186 gm	186 gm	148.7 gm	141 gm	124 gm
	Y	Y	Y	Y	Y	Y
	SD/MMC	MMCPlus/SD/SDHC	SD/MMC/MMCPlus/HSMMC	MMC/SD	Memory Stick	Memory Stick
	32 MB	450 MB	10 MB	20 MB	31 MB	31 MB
	Y / 640 x 480	Y / 800 x 592	Y / 640 x 480	Y / 640 x 480	Y / 640 x 480	Y / 640 x 480
	Y	Y	Y	Y	Y	Y
	Y	Y	Y	Y	Y	Y
	Li-ion	Li-ion	Li-ion	Li-ion	Li-ion	Li-ion
	N	Y	Y	Y	Y	Y
	N	Y	Y	Y	Y	Y
	Y	Y	Y	Y	Y	Y
	N	Y	Y	Y	Y	Y
	Custom camera insert	A/V cable, Earplugs	A/V cable, Earplugs	A/V cable	USB-A/V cable	USB-A/V cable, Hand-strap
	5.79	5.93	5.86	5.50	6.39	6.46
	4.50	4.50	4.00	6.00	5.75	5.75
	5.38	5.13	4.88	5.50	5.38	5.38
	6.08	5.75	5.50	5.67	6.33	6.42
	6.50	6.75	6.75	6.00	7.25	6.00
	6.00	6.25	6.00	6.00	5.75	5.75

So That's Where It Stands...

Well, that's that then. Refer to the tables for features and performance scores. Something to remember before buying a camera: costly cameras don't mean easy-instant-professional shots. Even the cheapest of cameras can get you some really impressive results. The tests we did were at Auto settings, because that's what most people tend to use. It's possible to get much better results by using the manual settings or different scene modes. Our *Tips and Tricks* on Photography might help you achieve just this.

Photography for you can graduate from a casual interest to a serious hobby to a passion. Who knows—you could just decide upon one of the cameras here, pick it up, and go places! ☒

rossi_fernandes@thinkdigit.com

Decision Maker

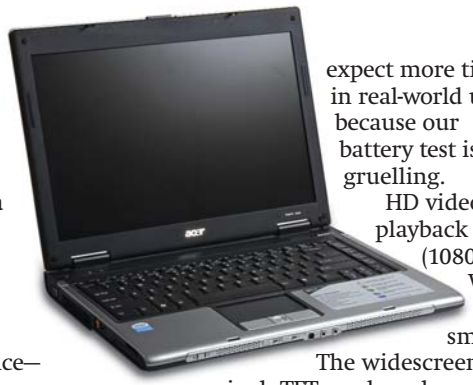
You Need	We Recommend
Value For A Beginner	Canon PowerShot A460, Canon PowerShot A450
Portability	Sony Cyber-shot DSC-W90, Canon IXUS 900 Ti
Video Capability	Canon PowerShot TX1, Samsung i70
Performance	Canon Digital IXUS 900 Ti, Canon PowerShot A710 IS

Bazaar

We test the latest hardware and software products available in the market

Acer Aspire 3684NWXCi

Good for the price



The Aspire 3684NWXCi laptop is for value-conscious buyers. With a silver-and-black exterior, it looks quite presentable. Though slim in design, the Acer 3684 weighs in at 2.4 kg—moderately heavy.

Ergonomically speaking, the keyboard is well laid-out; however, the keystrokes are bit hard—touch typists should try it before deciding to buy it.

An Intel Celeron M 440 at 1.86 GHz runs the laptop, and that's partly responsible for the low price. The Aspire 3684 has 512 MB of DDR2 RAM—we're all praise for Acer for being so generous! Having an 80 GB hard drive with a Combo DVD / CD drive is praiseworthy, considering the price.

In PC Mark 05—a synthetic test that measures overall system performance—performance was decent; the score was 2121, good for a budget-category laptop. 388 points in 3D Mark 06 means the laptop is good enough for games like *Quake 3*, *Counterstrike: Source*, and *Call of Duty*. Our real-world tests revealed enough power to multi-task between regular applications such as media players, word processing applications, browsers, etc.

The six-cell Li-ion battery pack managed to power the Aspire 3684 for 2:18 hours—which is reasonable, but expect more time in real-world usage because our battery test is gruelling.

HD video playback (1080p WMV) is smooth.

The widescreen 14.1 inch TFT renders sharp images with good contrast. Acer doesn't miss out on connectivity options in this budget offering—you get wired and wireless networking as well as Bluetooth.

The Aspire 3684 comes pre-loaded with Linpus Linux, which has a command-line interface... thankfully, Acer does bundle Windows XP and Vista drivers alongside just in case you feel like installing (an original copy of) Windows.

Priced at Rs 23,499, we think the Aspire gives local brands a run for their money. The lack of a proper OS is the only chink in its armour; otherwise, every thing seems to be on target for the value-conscious.

RATINGS	
Features	★★★½
Performance	★★½
Build Quality	★★★
Value for Money	★★★½
Overall	★★★

Specifications

Intel Celeron M440; 512 MB DDR2 533 MHz; 14.1-inch widescreen TFT; DVD/CD-RW Combo drive; 80 GB SATA hard disk; Dimensions: 14.3 x 10.8 x 1.3 (W x D x H) inches; Weight: 2.4 kg

Contact: **Acer India Pvt ltd**
Phone: **080-25219520 / 23**
E-mail: **rajesh_aiyar@acer.co.in**
Web site: **www.acer.co.in**
Price: **Rs 23,499**

BlackBerry Curve 8300

Business with pleasure

The BlackBerry (BB) Curve 8300 is the littler sibling of the BB 8800, which we tested in August 2007. Most phones from RIM are business-centric, but the Curve incorporates multimedia features.

Silver tones make for a cool, refined look. The slim profile means the Curve 8300 is very comfortable to hold and carry around.

It's full-QWERTY keys are small yet well-spaced out. Tactile response is brilliant.

The 2.5-inch 320 x 240 screen is adequately large and the image is crisp—good enough for the intended use: primarily as a PDA-phone. The 2MP camera gave us good results in daylight, but in low-lit conditions, the images were washed-out. The flash tends to over-saturate the subject to some extent in close-ups.

The mini USB port doubles up as a charging point. You can use the device for mass storage and access the 64 MB of internal memory; memory expansion is possible via the micro SD slot. The micro SD slot, being under the battery compartment, isn't hot-swappable.

Media Manager, based on Roxio software, comes with the BlackBerry Desktop Manager suite. This allows RIM to integrate multimedia technology and capabilities

RATINGS	
Performance	★★★½
Features	★★★★
Ease of use	★★★★
Value for Money	★★★½
Overall	★★★★



like ripping audio CDs to the phone, managing playlists on it, and more. BB 8300 Curve comes with the personal manager and organiser apps that most smartphones come with. Synchronise the calendar, memo, task-list, etc. with your PC via Bluetooth or USB, or even with your corporate network if your company runs a BlackBerry Enterprise Server.

The speaker-independent voice dialling application called VoiceSignal works really well. The 8300 performed well in our network reception test, with very few call drops. There is no Wi-Fi or 3G support.

Priced at Rs 24,990, the BB Curve 8300 is a good buy for those who demand executive features (PDA functionality) and a bit of multimedia; however, lack of Wi-Fi should be noted.

Specifications

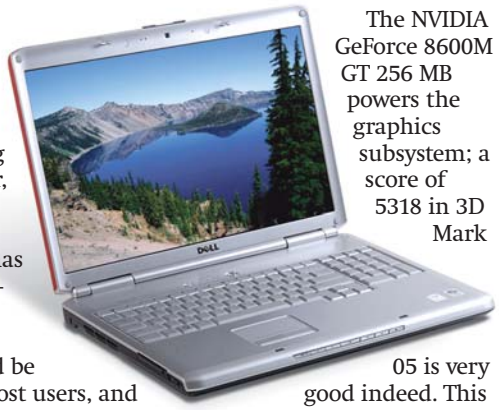
Dimensions: 107 x 60 x 15 mm; Weight: 111 gm; Quad-band, Display: 2.5-inch, 320 x 240, 16-bit; Expansion slot: Micro SD; Camera: 2MP; GPRS; EDGE

Contact: **Research in Motion**
Phone: **9892577010/9920055666**
E-mail: **blackberry.mumbai@airtel.in**
Web site: **www.blackberry.com**
Price: **Rs 24,990**



Dell Inspiron 1720

As You Like It



With the Inspiron 1720, Dell ups the ante in the super-performance notebook category. A 17-incher, the Inspiron 1720 is quite bulky, but the good design hides this.

You get to choose from eight colours for the lid—jet black and seven other satin finishes. The custom paint job, however, is modest, and will not last too long.

The 17-inch glossy widescreen (1920 x 1200) panel is beautiful; colour reproduction is vibrant, and it has a wide viewing angle.

The full-sized keyboard is a delight to type on—silent and great tactile response. The Matshita BD-RE UJ-220 Blu-ray drive means you won't need to upgrade the optical drive in a long, long time! However, DVI as well as HDMI connectivity has been left out—criminal.

500 GB of storage should be enough for most users, and 4 GB of RAM is adequate for most applications, games, and for the bundled Microsoft Vista Home Premium.

RATINGS	
Performance	★★★★
Features	★★★½
Build Quality	★★★½
Value for Money	★★★
Overall	★★★½

The NVIDIA GeForce 8600M GT 256 MB powers the graphics subsystem; a score of 5318 in 3D Mark 05 is very good indeed. This Inspiron churned out 96.4 fps and 65.31 fps in *Doom 3* and *FarCry* respectively at 800 x 600—decent for moderate gamers.

In terms of performance, the Dell Inspiron 1720 scores better than the *Digit Best Buy Gold* winner (the HP DV6226tx) in the Performance Laptops category of our July 2007 laptop test. The 85 Wh nine-cell battery managed to power this beast for 2:48 hours in our tests.

The Inspiron 1720 can be configured at Dell's Web site. The base price for the Inspiron 1720 series starts from Rs 58,650—price varies according to the components you choose. The laptop carries a one-year warranty with the option of on-site support for up to three years.

Specifications

Intel Core 2 Duo T 7500 (2.2GHz); 17-inch widescreen XVGA; NVIDIA GeForce 8600M GT 256MB; 500 GB SATA hard drive; 4 GB DDR2 667MHz RAM; 85 Wh battery pack

Contact: **Dell India Pvt Ltd**
Phone: **080-25068026/1800-4254026**
E-mail: **sweta1@torquemail.com**
Web site: **www.dell.co.in**
Price: **Rs 1,56,200**

Mitashi DHD 911

Something good, something bad

DVD players' prices have rock-bottomed, and most brands offer similar feature sets. The Mitashi DHD 911, however, offers HDMI output. Hooking it up to the latest displays is uncomplicated. Looks-wise, it's plain.

The DVD tray is slim with blue LEDs. The front panel sports an MMC card reader along with a USB port. A gripe here—the navigation and playback keys are hard, with erratic responses. Build quality is below par—Mitashi uses cheap plastic and a thin case.

The player's file browser allows browsing the media disc (DVD / CD) along with USB drive and also the MMC card. Audio, video, and image files on the input media are listed separately by the file browser, making for fairly simple navigation.

On the audio output front, the player supports Dolby Digital AC-3 5.1, along with coaxial digital signal output. For video output, the player has a variety of options: component, composite S-Video, and HDMI. Hooking it up to AV equipment is trouble-free thanks to the variety of output ports on the back panel.

We weren't able to play MPEG4 video files, and the input media source made no difference. It played our test DVDs and VCDs without any problems, though. The audio playback quality failed to impress, and the video playback quality was just about decent.

The infrared remote control is riddled with small buttons, and the layout is, overall, quite messy. It's menu layout is, however, clean, with control over basic and advanced features. Advanced settings like HDMI output resolution (480p / 720p / 108i / 1080p upmixed) are available in the video section of the main menu.

This product gives you average value for money—DVD players with better playback quality are available at around the same price range. The only saving graces for the Mitashi DHD 911 are features like Flash media as input source and support for HDMI.



RATINGS	
Performance	★★½
Features	★★★★
Build Quality	★★
Value for Money	★★½
Overall	★★½

Specifications

DVD, SVCD, VCD, JEPG, MP3, WMA, MPEG4 playback support; USB slot; MMC card slot; 5.1-channel audio

Contact: **Mitashi Education Ltd**
Phone: **022-25006661**
E-mail: **vishal@mitashi.com**
Web site: **www.mitashi.com**
Price: **Rs 3,990**

Canon LBP 5300

No complaints!



Colour laser printer prices have never been this low, and the downward slide continues. The LBP 5300 from Canon is an economical printer for high-volume printing.

Build quality is very good, and the printer is more than suited for daily office work. At 22 kg, it is pretty heavy. It is also a bit bulky—a bit wider than a 19-inch CRT and taller than an average PC cabinet, but this size is to be expected of a colour laser printer.

The standard input paper tray has a capacity of 350 sheets, while the optional paper tray can accommodate up to 500 sheets. Duplex printing is supported. The device connects to the PC via the USB 2.0 interface, and also features a network interface—10Base-T / 100Base-TX. The bundled NetSpot Device Installer makes installing this printer on a network straightforward.

The optical printing resolution is 600 x 600 dpi, and when we tested the device, both mono and colour prints are fairly sharp. Text was legible at all point sizes, and colour graphics were free from the artefacts typical of laser printers. A mono text document at normal quality took us 11.6 seconds to print, while a complex colour document took 14.5 seconds—pretty good by any standard. We logged a sustained pages per minute rate at a good 17.

RATINGS	
Performance	★★★★☆
Features	★★★★☆
Build quality	★★★★☆
Value for Money	★★☆☆☆
Overall	★★★½☆

This isn't really meant for photo printing, but we tried printing an A4-size photo; it took 16.8 seconds, which again is very good. The warm-up time is about 43 seconds.

The LBP 5300 comes with software for Windows, Mac, and Linux. It consumes 415 W during operation and 45 W during standby, and just 13 W in energy save mode.

Specifications

Printer resolution: 600 x 600 dpi (optical), 9600 x 600 dpi (enhanced); Printer language: Canon Advanced Printing Technology (CAPT); Input tray capacity: 350 (standard), 500 (optional); Interface: USB 2.0, 10/100 LAN; OS Support: Windows, MAC, Linux; Memory: 16 MB SDRAM; Weight: 22 kg; Dimensions: 412 mm x 453mm x 437.7mm (W x D x H)

Contact: **Canon India Private Ltd.**
Phone: **1800-345-33-66**
E-mail: **info@canon.co.in**
Web site: **www.canon.com**
Price: **Rs 65,995**

Kingston DataTraveler Secure Privacy Edition 8 GB

Spacious, secure, sturdy

USB capacity wars are raging hot. Now memory giant Kingston has upped the ante, introducing the 8 GB DataTraveler Secure Privacy Edition.

The drive is dark grey with black rubber piping for grip; it will weather dusty Indian conditions with ease. The cap fits snugly—no surprise, since the drive is supposed to be waterproof up to a depth of 4 metres. It comes with a detachable mini lanyard (the threaded string) to be fastened to a key-ring, but Kingston does not provide a key ring or anchor.

This is essentially a high-speed Flash drive for the extremely security-conscious; this is evident when you plug it in for the first time. You are greeted with a screen where you set a username, password, and password reminder hint. Kingston seems to be a little too paranoid here: only after setting a very "strong" (as in complex) password can you access the drive.

The DataTraveler supports 256-bit AES encryption on the fly, that is, data is encrypted as it is being transferred to the drive. Considering this, the drive is quite speedy in its class of drives. When we tested it, it took just 57 seconds to write a 700 MB sequential file to the drive, and a much lower 30 seconds to read the same file from the drive. Assorted files of the same capacity take much longer, though: over 2:30 minutes to write to the drive while reading them takes 1:15 minutes.

RATINGS	
Performance	★★★★☆
Features	★★★★½
Ease of Use	★★★★½
Value for Money	★★☆☆☆
Overall	★★★★☆

You'll find Windows' Vista ReadyBoost feature supported; this lets the OS use the drive as cache or virtual memory to enhance system performance.



In case you're toally taken in by the 8 GB figure, bear in mind that the drive only supports FAT32, thereby limiting the maximum individual file size to 4 GB. This means you can't carry around files such as DVD images, which are generally larger.

Price? A premium Rs 12,000. We'd suggest waiting for a few months; it is probably too early to buy this one.

Specifications

Capacity: 8 GB; Interface: USB 2.0; Password protection; Lanyard

Contact: **Kingston India Pvt. Ltd.**
Phone: **1800-425-4515**
E-mail: **techsupport_india@kingston.com**
Web site: **www.kingston.com**
Price: **Rs 12,000**

Western Digital Caviar SE16 WD7500AAKS

Recommended!

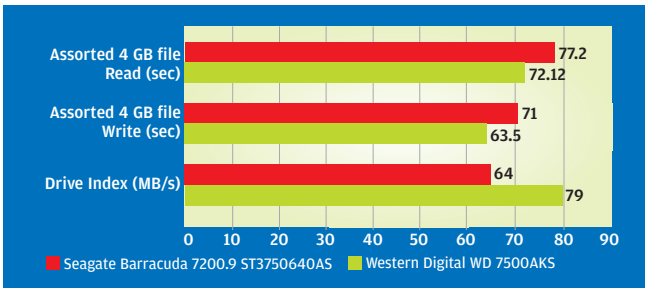


The Caviar SE16 WD7500AAKS is the top-of-the-line high-capacity (750 GB) drive from WD. The drive uses a four-platter design with 16 MB of buffer, which is the norm in this segment. Like other Western Digital drives, the WD7500AAKS implements SecurePark and ItelliSeek for improved shock tolerance in powered-off mode and improved power management respectively.

The graph below is a comparison between this drive and the 750 GB Seagate Barracuda ST3750640AS we'd received for our internal hard drive test in June 2007. After this, and an assortment of other tests, neither drive emerges a clear winner.

The cost per GB comes to about Rs 15—good enough. The price of Rs 11,500 is a little high for those looking to update to a spacious secondary drive, though it's a decent purchase as a primary hard drive.

RATINGS	
Performance	★★★½
Build quality	★★★★
Value for Money	★★★
Overall	★★★½



Specifications

750 GB; 7200 rpm; Buffer: 16 MB; Weight: 0.63 kg; Dimensions: 147 x 101.6 x 25.4 (W x D x H) mm; SATA 2

Contact: **Venktron Digital Systems Pvt Ltd**
Phone: **09322672594**
E-mail: **mahesh@venkatron.co.in**
Web site: **www.wdc.com**
Price: **Rs 11,500**

Spice D-88

Double identity!





GSM and CDMA have their advantages and disadvantages—it's difficult to choose which way to go. The advantage of GSM is the wide range of mobiles available, and a lot of operators to choose from. CDMA's advantage is the incredibly lower tariff.

But now, Spice has launched the D-88—the first mobile phone in India to support both standards.

The sleek candy-bar D-88 has a black plastic body with a gloss finish. It is ruggedly-built, but an exception to this ruggedness is the flap covering the batteries: it is flimsy. The flat membrane keypad sports a metallic finish. The ordinary-looking hands-free features a volume control dial. Though sluggish, the phone interface is not bad, really.

The D-88 supports CDMA along with dual-band GSM. Accepting two SIMs, one from each network type, the phone can operate simultaneously on both networks.

Screen resolution is 128 x 160, lower than any standard phone in its price range, but we must say the image quality is rather good. Snaps taken with the 1.3MP camera are nothing to brag about, and video capture quality is no better. There is no flash. A hot-swappable 256 MB micro SD card is provided, and the phone supports up to 1 GB micro SD card capacity. MP3 playback is, at best, passable. There's no FM tuner.

RATINGS	
Performance	★★★½
Features	★★★½
Build Quality	★★★★
Value for Money	★★★½
Overall	★★★½

The D-88 is not good at catching weaker GSM signals. The volume level of the speaker is rather low, even at maximum volume. We tried the hands-free, but the results were similar—not recommended in crowded places. The D-88 does not feature a speakerphone.

The Spice D-88 supports GPRS, and the accompanying USB cable gives you the convenience of connecting to the wireless Internet from your PC or laptop. Surprisingly, the phone does not feature any standard options such as Bluetooth or IR. Java applications are not supported either.

Rs 9,849 seems a bit too much for the Spice D-88, but then it lets you live two lives at the same time... We do think it's too early to go for this phone; wait and watch for developments in the area of dual-network phones.

Specifications

GSM 900/1800 and CDMA 800; Weight: 93 gm; Dimensions: 106.85 x 47.15 x 14.82 mm; 262K TFT, 128 x 160; Camera: 1.3 MP with 10x digital zoom; Connectivity: USB, WAP 2.0, Class 10 GPRS; Video format: 3GP; Memory: 256 MB micro SD; Bundle: USB cable for charging and data transfer, electric charger, stereo hands-free; Stated talk time: up to 3 hours in GSM mode, up to 2.5 Hrs in CDMA mode; Stated standby time: dual-mode—up to 120 hrs, CDMA—up to180 hrs, GSM—up to 200 hrs

Contact: **Regional Distributor**
E-mail: **trade-enquiry@spicemobile.in**
Web site: **www.spicemobile.in**
Price: **Rs 9,849**

on Digit DVD

PG Dating Pro Social

Kick-start your own social networking site!



PG Dating Pro Special is a ready-to-go script-based networking software that can be used to host a social networking site or an online dating service. The idea is to be able to get off the ground in the shortest time possible, assuming you have your business plan ready! Various Web site design templates are available—dating, family, adult, entertainment, etc.

The site can be managed using the administration panel (called the admin console). The tray icon allows access to the admin console along with the hosted Web site. The site will have a user-friendly layout.

The site will, by default, have an English-language interface, but additional language support is possible using context management in the admin console.

Incorporation of RSS news feeds is possible using the same console.

User feedback is an integral part of any Web site; a PHP-based forum and poll are available at your disposal for this. Registered users can interact with each other using Flash-based IM, chat, and blogs, and can mail messages to each other.

HTML and image advertisement banners can be attached to the bottom half or the left of all the pages excluding the homepage.

Paid user access is set by default—users are clubbed into groups such as platinum, gold, and so on. The site can be made completely free by deleting these paid user groups. The admin decides the cost structure on an hourly basis for paid users via the user management in the admin console. The script even allows the admin to choose the payment system for paid users—PayPal, E-gold, Authorize.net, among others.

The site's contest management option binds a vulgar word list to the site, notifying the admin when such a word is used. The option to watermark photos hosted on the site prevents possible misuse of profile images. The 33 preloaded profiles are enough to start a Web site. There's also an option to add chat-bots, if desired.

At $899 (Rs 36,500), PG Dating Pro is available with its code as an open code license. This, while having a developer at one's disposal, would help in implementing additional features or modifying or upgrading existing features.

PG Dating Pro—$599 (Rs 24,500) for the version without the code—is great for a Web startup, because it is priced right and has most of what you'd need.

System Requirments

PHP 4.0 or greater, MySQL 3.23.0, Windows XP/2003/Vista, Windows based server and Web hosting service

Web site: **www.datingpro.com**
Price : **$599 (Rs 24,500)**

Cockos Reaper 1.8

Fuse Audio streams



"Rapid Environment for Audio Prototyping and Efficient Recording," abbreviated Reaper, is a great multi-track editor allowing for the production of complete tracks from bits and pieces of audio loops.

Reaper doesn't look impressive—it has a grey colour scheme with an interface filled with buttons, so it doesn't "feel" like more mature audio editing tools such as Adobe Audition. Making things better are the colourful custom themes available.

The left half of the interface is filled with the channel array which allows one to add, delete, mute, and adjust playback characteristics and add effects to a particular channel. The centre area is the largest, filled with visual tracks, allowing direct editing of envelopes of specific regions. At the lower left-hand corner, you'll find the master fader / volume. Adjacent to it are faders for other channels along with VU meters, recording button, FX console, and more.

Excellent MIDI, DX, and VST plugin (VSTi and DXi) integration allows you to work with complex MIDI sequencers and import files into Reaper. The visual pane displays the progress of a track, and can be zoomed into or out of using the scroll wheel—so you can look at the entire project in a single snapshot.

Pre- and post-FX effects on a particular channel are easy to apply, and most novices and semi-professions can manage them easily. There's a handy grid for working with tracks and loops, allowing one to add loops and resize them. Markers are present as in most professional software, and allow fine-tuned placement of loops.

Overall, Reaper works great as a multi-track recorder—you can record single or multi-channel sessions using inputs from multiple channels or sources. Loop-based techno and trance tracks are easy to sequence using Reaper. Reaper doesn't turn your PC into a Digital Audio Workstation, though; mastering and audio editing software is still required.

Reaper stays well under 30 MB while working with two or three tracks.

At $40 (Rs 1,625) Reaper provides great value for the novice. The $200 commercial license isn't justified. Cakewalk Sonar at $369 is a better buy for audio professionals, with Steinberg's Cubase and Nuendo Mackie's Tracktion also available in the same price range.

Recommended system

Processor 1500 MHz, Windows 2000/XP/Vista, 512MB RAM.

Web site:**www.reaper.fm**
Price: **$200 (Rs 8,100)**

on Digit DVD

SpeechVibe
Total voice control

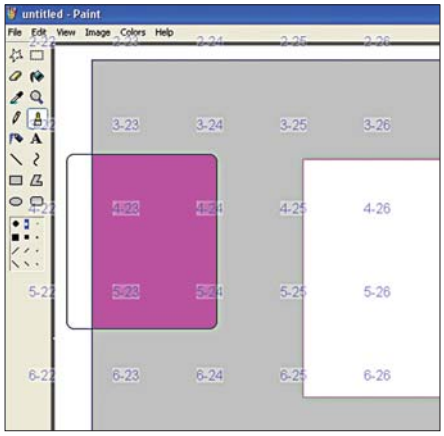
SpeechVibe allows complete control over one's PC using voice commands.

You first create a voice profile, which doesn't take too long—and you can start using SpeechVibe. SpeechVibe scans the Start Menu, and launching an installed application is straightforward—just say, "Launch (application name)".





There's something called the Mouse Grid, pictured below. It allows even mouse movements to be controlled by voice. This translucent grid takes up the whole screen and highlights point coordinates. You use the name of the coordinate—such as 3-29, 3-30, and so on—to tell SpeechVibe which action you want performed. So, for example, if your Outlook icon is under coordinate 2-23, you say "2-23" and Outlook will be launched. You can click, move, double-click, right-click, and perform drag and drop operations using the mouse grid. It is so precise, you can even create objects in MS Paint, as we've done here. Not that you'd want to paint this way, but it demonstrates the power SpeechVibe brings with it.



Browser and mail client support comes inbuilt; when you say "Go to {Web site}", SpeechVibe launches the default browser. A window filled with sorted, numbered, and continuously scrolling favourite URLs is superimposed. You then open a Web page by saying "Pick {number}".

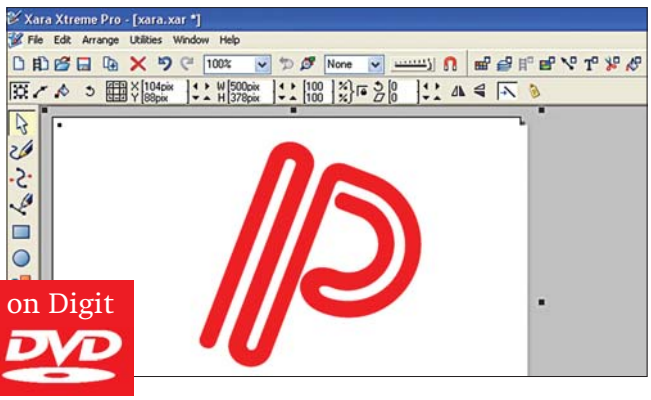
SpeechVibe also supports speech-to-text by superposing a "dictate environment." This allows you to correct mistakes on-the-fly. An example of this is shown below: a speaker said "Digit", and the word was recognised—and there are several alternatives that you can choose from by saying the appropriate number.

SpeechVibe is not as accurate as expensive voice recognition software, but the features are innovative. These will take some getting used to, of course. At just Rs 675, you might want to consider this one if you're in the market for speech recognition software. A 30-day trial is on this month's DVD.

Recommended system:
Processor 1700 MHz, Windows XP/Vista, 1GB RAM, Microphone.

Web site: **www.speechvibe.com**
Price: **$15.00 (Rs 675)**

Xara Xtreme Pro 3.2
An alternative vector-based graphics suite



on Digit DVD

Xara Xtreme allows designers to create vector-based graphics and illustrations to be used in print and Web-based publishing. It is primarily a vector graphics software, but it incorporates bitmap and Flash editing tools. It is an alternative to Adobe Illustrator CS3 and CorelDRAW X3 for the Windows platform, and has much to prove!

The layout is well-organised with handy tools and easy-to-reach menu bars—most beginners and intermediate users should be comfortable from the start.

Xara Xtreme allows advanced bitmap editing options. Operations like crop, rotate, auto-enhance, etc. can be applied to bitmap images. Each step in the process of editing is noted by a picture, so backtracking to earlier versions of the file is possible. The Flash tool is very similar to the bitmap tool; even the interface looks alike. The features available here are pretty basic, though.

You get support for print and pre-press; you can set up multi-page documents and spreads. Xara Xtreme Pro documents can be exported to PDF. There is support for rich text documents—meaning the formatting is maintained in the process.

Linking to an external editor is possible: Xara automatically updates its own document when one saves changes to the file or image in an external application.

Effects are rendered very fast; memory consumption hovered around the 60 MB mark during our test—pretty good for a graphics suite.

Xara Xtreme Pro turns out to be more than just a vector illustration program. The Pro 3.2 edition packs in some exceptional features for print and Web designers alike. Considering that Adobe Illustrator CS3 retails at $599 and CorelDRAW X3 at $399, the price tag of $249 (Rs 10,000) is decent. Beginners might want to try out Xara Xtreme (not to be confused with Xara Xtreme Pro)—a 30-day trial—from this month's DVD. The feature set is reduced, but the price is unbeatable: $79 (Rs 3,250).

Recommended system:
Processor 1500 MHz, Windows 2000/XP/Vista, 512MB RAM.

Web site: **www.xara.com**
Price: **$249 (Rs 10,000)**

Tips & Tricks

SECRETS THAT KEEP YOU AHEAD IN THE RACE

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WINDOWS VISTA

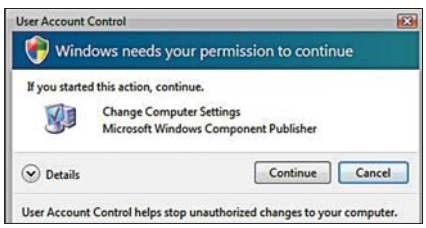
Over six months have passed since Windows Vista was released, and you've probably read our *Fast Track to Windows Vista*. Now here come loads of tips and tricks to simplify things and spice up your Vista experience.

Disable UAC

User Access Control is that annoying thing that keeps on popping up tirelessly to ask you if it is OK to install a particular program when you try to install one. It is one of the biggest irritants in Vista, but we must warn you that disabling it will render your system less secure.

Open the Control Panel, type in `user account` in the search box, and press `[Enter]`. You'll see the link for `Turn User Access Control (UAC) on or off`. Click it. Uncheck the box, reboot your computer, and you will no longer be bothered by UAC. There is an even faster way to disable UAC from the command line: use

```
C:\Windows\System32\cmd.exe /k %windir%\System32\reg.exe ADD HKLM\SOFTWARE\Microsoft\Windows\CurrentVersion\Policies\System /v EnableLUA /t REG_DWORD /d 0 /f
```



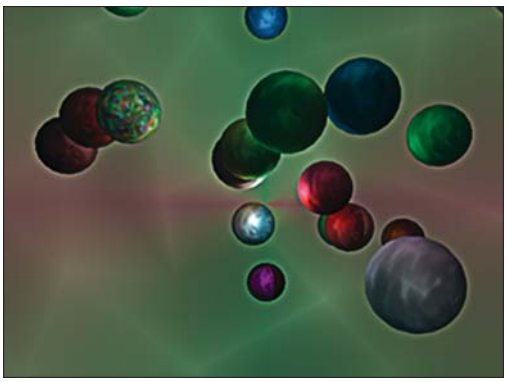
Vista User Access Control prompt

For the security-conscious, we'd suggest an alternative method. In this one, only the UAC of the Administrator account is disabled; other users will go through the same security mechanism as before. Open the Registry Editor and go to `HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Policies\System`

Create a 32-bit DWORD `ConsentPromptBehaviorAdmin` and set its value to `0`. Restart. What actually happens here is, you elevate the privilege level for the administrator.

3D Benchmarking!

Vista has a cool inbuilt 3D benchmark. This is included in the System Assessment Tool, which benchmarks your system during installation. But you can run this benchmark from the command line by using winsat along with command line parameters. The complete list is as below. Think of this as an Easter Egg... try them and see what they do!



3D Benchmark in Vista

```
winsat aurora
winsat d3d -texshader -totalobj 15
winsat d3d -objs C(20) -texshader -totalobj 50
winsat d3d -totalobj 20 -objs C(20) -totaltex 10 -texpobj C(10) -alushader -v -time 10
winsat d3d -totalobj 20 -objs C(20) -totaltex 10 -texpobj C(1) -alushader -noalpha -v -time 10
```

Bet You Didn't Know

Resize

You can quickly resize the icons in a folder. Just hold down `[Ctrl]` and scroll the mouse wheel in any folder to make the icons grow larger or get smaller.

Gadgets Without The Sidebar

The Sidebar is a bit of a distraction and occupies too much Desktop space. But you probably do like some of the gadgets that come with it. You can run these gadgets without the need of the Sidebar: just drag and drop one to the Desktop, right-click anywhere on the clear part of the Sidebar and choose Close Sidebar. The gadgets continue to run.

Auto-complete URLs In IE7

Enter a word, such as Microsoft, in the address bar and press `[Ctrl] + [Enter]` to automatically prefix **"http://www."** and append **".com"** to it and launch the URL. `[Shift] + [Enter]` suffixes **".net"**, and `[Ctrl] + [Shift] + [Enter]` appends **".org"**. Add `[Alt]` to these shortcut combinations to open the link in a new tab.

Speed Up SATA Hard Drives

Windows Vista, by default, doesn't enable the advanced write caching feature of SATA hard drives. You can considerably speed up your SATA hard drive by enabling this. Open Device Manager by running `devmgmt.msc`. Open the Disk drives section of the tree, right-click on your hard drive listed there, and select the Policies tab. Check the box next to Enable advanced performance.

Trim Thick Borders

Probably to show off the transparency feature, all windows in Vista have thick borders, which can be an eyesore especially when you're not using Aero. To trim the borders to your taste, open the Classic Appearance Settings dialog by right-clicking on desktop and choosing Personalize. Click on Window Color and Appearance. (If you have Aero enabled, you'll have to click Open classic appearance

Bet You Didn't Know

Shrink Or Expand Disks

Windows Vista comes with Disk Management, which even lets you shrink or expand volumes without destroying data on them. No need to buy expensive third-party utilities! Open the Control Panel, type in partition and press [Enter]. You will immediately see the link Create and format hard disk partitions under Administrative Tools. Click on it to launch Disk Management. Right-click on a partition and you will see the Shrink as well as Extend options. You should defrag the partition before doing the shrinking or expanding to achieve the best results, since the operation is dependant on the amount of contiguous free space available.

properties for more color options.) Click the Advanced button, select Border Padding in the Item dropdown field, and change the size from the default 4 to 0 (experiment with different values).

Take Ownership The Easy Way

Taking ownership of system files and folders in Vista is a pain. You can use the command line or the GUI, but you will tire after a while because there are simply too many steps. Here's a way that will add this option to the context menu, so all you need to do to take ownership is to right-click and select the option. Open Notepad and type in the following.

```
Windows Registry Editor Version
5.00
[HKEY_CLASSES_ROOT\*\shell\runas]
@="Take Ownership"
"NoWorkingDirectory"=""

[HKEY_CLASSES_ROOT\*\shell\runas\
command]
@="cmd.exe /c takeown /f \"%1\"
&& icacls \"%1\" /grant
administrators:F"
"IsolatedCommand"="cmd.exe /c
takeown /f \"%1\" && icacls
\"%1\" /grant administrators:F"

[HKEY_CLASSES_ROOT\Directory\shel
l\runas]
@="Take Ownership"
"NoWorkingDirectory"=""

[HKEY_CLASSES_ROOT\Directory\shel
l\runas\command]
@="cmd.exe /c takeown /f \"%1\"
/r /d y && icacls \"%1\" /grant
administrators:F /t"
"IsolatedCommand"="cmd.exe /c
takeown /f \"%1\" /r /d y &&
icacls \"%1\" /grant
administrators:F /t"
```

Save the file as takeown.reg. Double-click on the file and click Yes when prompted. There's no need to reboot.

Copying Over Mapped Drives

Vista has a known problem in which a mapped drive or network gets disconnected while copying large files. This is caused due to the new auto-tuning network, which changes the receive window on-the-fly. To turn this off, open an Administrative mode command prompt by running cmd.exe and pressing [Ctrl] + [Shift] + [Enter] or by right-clicking on the Command Prompt shortcut and selecting Run as Administrator. To turn Auto-Tuning off, type in

```
netsh int tcp set global
autotuninglevel=disabled
```

Assign A Hotkey To The Snipping Tool

Vista comes with a nifty screenshot utility called the Snipping Tool, which can capture all or parts of the screen. Problem is, the tool has no provision for a hotkey to bring up the window. In the Start Menu, click on All Programs and then the Accessories folder, and you'll see the Snipping Tool. Right-click on it and select Properties. You'll see an empty Shortcut key text box, in which you can place the mouse cursor and press a hotkey such as [Ctrl] + [F12].

Quick Launch Hotkeys

You can use hotkeys to launch the first 10 items in Vista's Quick Launch menu. These hotkeys are pre-assigned by Vista. To launch the first item, press [Windows] + [1], for the second, press [Windows] + [2], and so on.

From Deep Sleep To Shut Down

The default action of the Power Button in Vista is to Sleep, which is not really what everyone prefers. Just open the command prompt and type in powercfg.cpl,1 and press [Enter].

Bet You Didn't Know

Checkboxes To Select

You can use checkboxes to select multiple files. Click on the Organize menu and choose Folders and Search Options. Now on View tab, you will see Use check boxes to select items. Check the box against this and click OK. Using checkboxes to select files instead of doing the same by holding down [Shift] or [Ctrl] gives you better control and prevents accidental copying or moving of files. To select all files, simply check the box next to Name (above the list of names).

Bet You Didn't Know

Copy File Paths

You can copy the path of a file to the clipboard. Just right-click on the file while holding down [Shift] and you will find a new option in the context menu, "Copy as Path". You can also copy the path of a folder in this manner.

Enable Additional Clocks

There's an enhancement to the system clock in Vista which lets you display two additional clocks when you hover your mouse over the system tray clock (to keep track of time in a different time zone). To add a clock, right-click on the clock in the system tray and select Adjust Date/Time. Click the Additional Clocks tab, check the Show this clock box, select the new time zone, and give it a convenient name.

Speed Up Vista With ReadyBoost

Windows Vista comes with a new feature, ReadyBoost which lets you plug in your flash drive or SD card to store commonly-used files for quicker access than from the hard drive. Just stick in the USB drive or SD card or any other Flash device. In the AutoPlay dialog that pops up, click the Speed up my system link, which takes you to the ReadyBoost configuration panel. Select Use this device, and set the amount of space you want to use. Windows will create a paging file of that size on the disk.



Speed up Vista using ReadyBoost

Add The Encrypt/Decrypt Option To The Context Menu

Vista has the option to encrypt and decrypt files by accessing the properties dialog. But there is a better and faster way to do it—just add these options to the context menu. Open the Registry editor and navigate to HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\Advanced

In the right pane, create a new 32-bit DWORD value called EncryptionContextMenu and give it a value of 1. Now whenever you right-click a file, you will see a new option, Encrypt, which will let you encrypt it (along with the parent folder, if



Encrypt files

necessary). Once it's encrypted, when you right-click on it, you will see the Decrypt option.

Hide The Floppy Drive

You no longer use a floppy drive these days, so there's no reason for it to be displayed in My Computer. Open the Registry Editor and go to `HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Policies\Explorer`
If this key does not exist, create it. The modify or create a 32-bit DWORD named `NoDrives`. Assign it a value of `1`.

Jagged Fonts?

If you just bought a Vista PC, chances are you'll find that the fonts are jagged and hard to read. Manufacturers generally disable font smoothing, because that feature imposes a penalty on PC performance. You can enable font smoothing by opening the Classic Appearance Settings, clicking the Effects button, and checking the box against Font Smoothing. Revert if you notice a considerable slowdown.

Share Folders As Easily As In XP

In Vista, when you right-click on a folder and click Share, a Wizard starts, which is meant to make things easier, but in reality is a bit confusing for many ex-XP users. You cannot choose the share name and will instead be assigned a weird name such as `\\computer\Users\Username\Data`. To share in the XP way, click Properties instead of Share. Select the Sharing tab and click Advanced Sharing. Check the box against Share this folder and choose a share name. You can also set permissions here.

Symlinks in Vista

One of the interesting features of Linux—symbolic links—finally makes an appearance in Windows. You can create symlinks using the command-line utility mklink. The syntax is as below:
`MKLINK [[/D] | [/H] | [/J]] Link Target`

where:
`/D` Creates a directory symbolic link (soft link). Default is a file symbolic link
`/H` Creates a hard link (link to a file) instead of a symbolic link
`/J` Creates a Directory Junction
`Link` Specifies the new symbolic link name
`Target` Specifies the path (relative or absolute) that the new link refers to

For example, if you want to make `D:\Data` to be available from the folder `D:\Maindata`, use `C:\mklink /D D:\Maindata D:\Data`

If you now look in `D:\Maindata`, you'll see whatever files were in the other directory.

AMAROK

Amarok is an extremely powerful yet simple audio player for KDE. The beauty of this player is that it goes the extra mile by providing detailed information about the currently playing song, music by the same artist, and so on. It even has support for Apple's iPod, iRiver's ifp, and a multitude of generic USB devices.

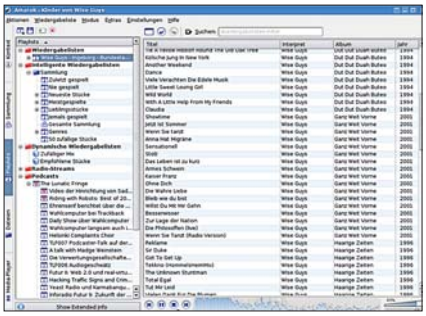
An Alarm Clock

You can very easily set up Amarok to work as an alarm clock. The command used here is `dcop`, which instructs Amarok player to play. Here is the syntax:

```
%`kde-config --prefix`/bin/dcop --user USERNAME amarok player play
```

This command will tell Amarok to start playing. Just make sure Amarok is running when you go to bed, and it will wake you up to the tune of whatever you last pressed Stop on.

Also check out the Amarok script named weekalarm, downloadable from **http://kde-apps.org/CONTENT/content-files/23160-weekalarm-0.9.1.amarokscript.tar.bz2**. This is a versatile alarm script for Amarok, and it includes the ability to set different alarm times for each day, use wake-up playlists, control volume fading, and enable snoozing.



Amarok player

Listen In

In a properly set up ssh environment, you can get information about what is being played on Amarok on your computer from another computer on a network. The following command will return the Now Playing string.

```
ssh -i ~/.ssh/id_rsa YourIP dcop --user YourUserName amarok player nowPlaying
```

Also note that this expects your identification to be found in the `~/.ssh/id_rsa` file.

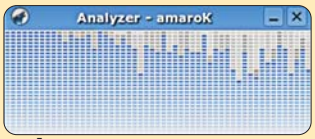
The Amarok settings file can be found at
`~/.kde/share/apps/amarok`
`~/.kde/share/config/amarokrc`

Bet You Didn't Know

Quick Picks

Hover your mouse on the icon to display a pop-up with the current track information. Click the middle mouse button on this icon to play/pause the current track. Scrolling the mouse wheel will change volume. If you hold down `[Shift]` while scrolling, the mouse wheel seeks through the current track. Hold `[Ctrl]` while scrolling the mouse wheel to skip through tracks in the playlist. Drag and drop items into the tray icon to open a pop-up menu allowing you to choose from Append to Playlist, Append and Play, and Queue after Current Track. The tray icon also indicates the song position.

Bet You Didn't Know



Detach

The Amarok player analysers can be detached from the Player window. Just press `[D]` on your keyboard to open the active analyser in an independent, resizable window.

Bet You Didn't Know

Shortcuts

Hold down `[Ctrl]` and click the right mouse button to enqueue files in the order in which you clicked them. Press `[Enter]` after a playlist search to play the first search item and clear the search results.

30 Minutes Expert

Keeping Your PC Trim And Proper

Every Windows XP PC gets sluggish over a period of time. Give it some TLC to regain lost speed!

Jayesh Limaye

A Windows XP computer... is much like a car. It requires maintenance to keep it running smoothly. It needs to be well-oiled, so to speak, using the methods we'll mention. Some of these might be familiar, but you're to find something you didn't know about before!

Organise Files And Folders

XP usually stores most of your files in the My Documents folder, which resides on the C drive. You should relocate this folder to another drive such as D, so that your data remains intact when you reinstall Windows. To do this, create a folder such as "MyDocs" on the D drive, right-click on My Documents, click on Properties, enter `D:\MyDocs` in the Target box, and click OK. You will be asked whether you wish to move all the documents from the old location to the new location; click Yes.



Windows desktop search

You could then create folders such as Work, Home, etc., in My Documents. Windows already has a good way of organising files—there is My Pictures to store images, My Music to store music and so on, but you can create additional folders inside these to categorise your pictures, music, etc. so it becomes easy to locate them. If you need to search and want to do it faster, install an indexing and search tool—such as Windows Desktop Search, Google Desktop Search, or Copernicus Desktop Search. These index your files for faster retrieval.

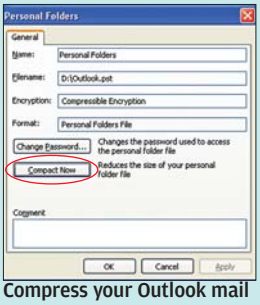
You should also relocate your default Outlook mail and address book store folder to the D (or any other) drive. Open the Registry Editor and go to the appropriate key according to the version of Outlook. If you're using Outlook 2003, locate the key `[HKEY_CURRENT_USER\Software\Microsoft\Office\11.0\Outlook]`. For Outlook XP, replace `"11.0"` with `"10.0"`; for Outlook 2000, it's `"9.0"`. Create an Expandable String Value (REG_EXPAND_SZ) called `ForcePSTPath`, and set it to equal the full path of the required personal folder directory such as `D:\MyMail` (you need to create this destination beforehand). Exit the Registry and log out of Windows for the change to take effect.

If you use Outlook Express, this is simpler: go to `Tools > Options > Maintenance > Store Folder` and click Change... . Point to the new location.

Delete Or Compress Files

You can do this using the Disk Cleanup tool. To launch it, go to `Start > All Programs > Accessories > System Tools > Disk Cleanup`. Use this tool to clean up each of your drives and compress infrequently used files and folders. Some temporary files will still be left in the temporary folders; manually delete these by opening the folders `%temp%` and `C:\Windows\Temp`. You can access the former by typing it into the Run dialog box.

As you surf the Internet and your browser downloads pages, it stores them as temporary files. This is to make surfing faster: for example, when you click the Back button, the browser need not download the previous page again—it loads it from the cache containing the temporary files. After a longish while, though, say a month, these are likely to be of no use. Delete the temporary Internet files this way: in Internet Explorer, go to `Tools > Internet Options`. Under the Temporary Internet files section, click Delete Files. Check the box in front of Delete all offline content and click OK. If you use Opera, select `Tools > Preferences`, go to the Advanced tab, click on History, and click Empty now. Firefox users need to select `Tools > Options`, go to the Cache tab, and click Clear Cache Now.



Compress your Outlook mail folder

To minimise the space occupied by mails, in Outlook, click on `Tools > Options > Mail Setup`. Click the Data Files button, select Archive Folders from the list, click Settings, and click Compact Now. This will compress that particular folder; do the same for all the items in the list. If you use Outlook Express, select File > Folder > Compact All to achieve the same thing.

Defragment

Files get scattered all over the hard drive, so accessing them becomes slower. This tends to increase over time as more and more programs are installed. The Disk Defragmenter bundled with Windows organises files on your hard drive, thus helping it run more efficiently. If you have a highly-fragmented drive, this will make a huge difference to the performance of your PC. Go to `Start > All Programs > Accessories > System Tools > Disk Defragmenter`. Select a drive and click Defragment, and do that for all your drives. Whether or not the program advises you to defragment a drive or not, you should defragment once a month.

Speed Up XP Boot-up

One of the main causes of XP booting slowly is the method of loading drivers. Windows versions prior to XP loaded drivers sequentially, but since XP, it has been done concurrently, causing a slowdown. This information is written to the file `C:\WINDOWS\Prefetch\Layout.ini`. While creating this file, XP does a partial defragmentation of the files listed in Layout.ini to make them available in one contiguous area of the hard drive, allowing to load them faster. Various factors adversely affect this defragmentation process, such as a fragmented hard drive, improper defragmentation of the above files by the regular Defragmenter, etc. It is therefore necessary to do this defragmentation manually using a utility from Microsoft known as BootVis, available at **http://www.majorgeeks.com/download.php?det=664**. Extract the ZIP file and run BootVis.exe (very preferably after defragmenting your hard disk).

The first step in tweaking or troubleshooting your boot process is to run a boot trace. Go to `File > New > Next Boot + Drivers Trace`. The Trace Repetitions window will prompt you for the number of repetitions (reboots and traces) to run. Let's go with the defaults; click OK. BootVis Cancel the reboot if you need to save your work, then reboot.

After XP reboots, BootVis restarts automatically and provides individual graphs for the system activity areas such

as Boot Activity, CPU usage, Disk I/O, Disk utilisation, etc. Armed with this indication of how well the boot process is going, you can optimise the system. Select `Trace > Optimize System`. Again, BootVis will present you with a 10-second countdown before rebooting. When the system reboots, the BootVis window will appear, indicating that BootVis is using information gained from the previous boot and the current boot to optimise the system.

When the next window appears, BootVis places the files specified in the layout.ini file in the area of contiguous disk space created during the defragmentation you did prior to running BootVis. If you have a really old installation of Windows, we'd recommend running the above procedure again or setting BootVis to repeat for two or three times.

Backup Your Files

XP comes with a free backup utility. Find it at `Start > All Programs > Accessories > System Tools > Backup`. (If it has not been installed, you can get it at **http://www.microsoft.com/windowsxp/using/setup/maintain/backupsw.mspx**.)

The Backup or Restore Wizard appears when you run the program. Click Next. Select the Backup Files and Settings Radio button. Click Next. Click All information on this computer on the What to Back Up page, then click Next. Click Choose a place to save your backup, and select your external hard drive (or a second hard drive if you have more than one, or your CD / DVD drive) on the Backup Type, Destination, and Name page and click Next. Click Finish on the Completing the Backup or Restore Wizard page. Windows Backup will save a copy of your files to your external hard drive. If you lose some data, run the Backup And Restore Wizard again, and select the Restore Files and Settings Radio button. The Wizard explains how to proceed thereon.



Microsoft's backup tool

We'd recommended that you back up your files every week.

Remove Unnecessary Programs

Every program installed on your computer takes up space, and some programs slow your computer down regardless of whether you use them or not. So if you installed a program you do not intend to use again, it's a good idea to uninstall it. You can do this using either the Add/Remove Programs applet in the Control Panel or the Uninstall icon in the program's folder in the Start Menu.

You might notice leftover entries, in Add/Remove Programs, of programs that have already been uninstalled. You can remove these by editing the Registry. Go to `HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall` in the Registry, and under this key, look up the sub-keys containing the unwanted entries and delete them. You can also download and use programs such as CCleaner (available at **www.ccleaner.com**), which does the same thing and also removes all traces of uninstalled programs.

Configure Power Management

Windows XP comes with excellent power management facilities that give you great control over the amount of time that your computer components should wait to enter a low power consumption mode. This can be done using the Power Options applet in the Control Panel, where you can choose from amongst the various inbuilt power schemes. If you wish, you can specify your own power profile by choosing the amount of idle time that your monitor and hard drive should wait before turning off. You can also specify the amount of idle time to wait before your computer can enter the Standby mode.



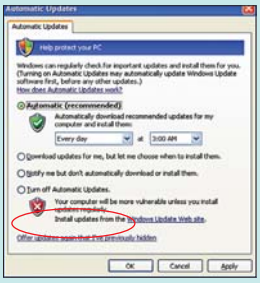
Enable Hibernate from the Power Options

If you can spare disk space on your OS drive equal to the amount of installed RAM, you can enable the Hibernate feature: in the Hibernate tab, check Enable hibernation checkbox. Go to the Advanced tab and select the Hibernate option from the drop-down list below "When I press the power button on my computer", in the Power buttons section. Now when you press the power button, your computer will enter the Hibernate state (which is faster than normal shutdown), and you can turn off the mains. When you restart your computer, it will be restored to the exact state at which you hibernated (and this is much faster than a normal XP startup). The advantage of this is that if you were working on a certain program, you can hibernate midway through it!

For that additional push...

The Windows page file is where Windows stores information about recently used programs, so as to speed up access. By default, this file is located on the drive where XP is installed. But since this drive is already being used a lot as you work, and is prone to fragmentation, you should relocate the page file to another drive. Open System Properties in the Control Panel, select the Advanced tab, the Settings button under Performance, and the Advanced tab in the Performance Options that opens, and the Change button in the Virtual Memory section. You'll see a list of the drives attached to your computer, select the drive where XP is installed, select the No paging file button, and click Set. Select another drive with free space equal to at least three times the amount of installed RAM (preferably the second drive), select System managed size, and click Set. Click OK three times and restart Windows when prompted.

You can also make certain settings to your BIOS to quicken the boot process; enter the CMOS setup by pressing the appropriate hotkey (usually `[Del]`). Enable Quick Power On Self Test (POST); this will cut down on a few seconds of bootup time. Similarly, disable the option similar to "Floppy Seek on booting", so that your floppy drive will not wait to be checked for during booting. If you don't have a floppy drive, disable the floppy controller altogether (usually located in the Integrated Peripherals section) and disable the floppy (usually in the first page of the CMOS). Similarly, you can disable communication and parallel ports, unused SATA controllers, on-board LAN, FireWire, and audio devices if you do not intend to use them. Finally, you should set the hard drive as the first boot device instead of the CD-ROM, and disable the boot ROM of your LAN card to further cut down on boot time.



Turn Automatic Updates on

In addition to the above, you should install critical Windows Updates regularly to fix bugs and also to update drivers and certain programs. Use the Automatic Updates feature to do this. Make sure this is turned on in the Control Panel. A good anti-virus, firewall, and anti-spyware is also a must along with regular updates (at least once a week or using the auto-update feature). Schedule these to run a thorough scan at least once a month—just so you don't forget. ☒

jayesh_limaye@thinkdigit.com

Disable A Browser Section

Right-click on any browser title and a list of visible browsers will show up. You can use this list to disable or re-enable any browsers available.

Search Intelligently Using Google-like Syntax

You can get precise search results by using Google-like search syntax. For example, if you key in `artist:shakira` in the search box, you'll get everything that has `shakira` as the artist. You can also enclose the expression in double quotes so that you can use spaces. You can also chain expressions (as in `artist:shakira album: "Oral Fixation"`) to find an album containing "Oral Fixation" by the artist Shakira.

Each tag has its own operator, so you can even search for

```
bitrate:192
comments:"Immersive score"
type:ogg
score:92
track:5
genre:classical
composer:"Beethoven"
year:1973
```

Boolean operators can be used to refine your searches. The `'-'` operator negates the expression.

Output To The Desired Sound Device

If you're using ALSA drivers, you can output the audio to a specific sound device with xine. Set up a `~/.asoundrc` (user-only) or `/etc/asound.conf` (system-wide) file that aliases your hardware devices, then insert that alias in the "device used for stereo output:" box in the xine-engine configuration tab. Alternatively, you can directly enter the alsa device (`hw:0,0` or `hw:1,0` and so on). If you choose this latter method, be aware that ALSA's corresponding plugfoo (e.g. `plughw:0,0` or `plughw:1,0` and so on) routing through alsa-lib is much preferred.

Here is an example of `~/.asoundrc` for a machine that has an onboard Intel AC97 codec and a usb-audio device:

```
pcm.intel8x0 {
type plug
slave.pcm "hw:0"
}
ctl.intel8x0 {
type hw
card 0
}
pcm.usb-audio {
type plug
slave.pcm "hw:1"
}
ctl.usb-audio {
type hw
card 1
}
```

Now enter usb-audio in the xine-engine setup screen, and the output should go to the usb-audio device (with alsa-lib properly handling sample rate conversion, channels, and so on).

DIGITAL CAMERAS



In this issue, we've already told you about the best cameras your money can buy; now we give you some suggestions on how to use it right. Here are some tips that can come handy when you're out shooting.

Get Yourself A Tripod

Cumbersome as it may seem to set up, a tripod is great for getting rid of the unavoidable hand shake that is the root cause of blur in your photos. It's also not always possible to place your camera in a suitable position in the environment you may be in. Tripods allow you place your camera in pretty much any position, and they aren't overly expensive either. You can find light, portable tripods for around Rs 1,500. It's possible to get compact tripods that can be folded into a package around a foot in length that can easily fit into a backpack.

Avoid The Flash

One of the worst possible things one can do with a camera is to use the flash. Flashes on a camera wipe out most detail and wash out most colour in the photograph. Digital cameras don't have as strong flashes as it is, and most of them don't have provision for more powerful ones—so most of the time your camera flash isn't going to brighten the scene anyway.

To clarify: the flash is effective only at short ranges, and in that range, it tends to destroy detail and colour; at longer ranges, it's pretty useless.

Now if you use the flash, you'll tend to get an imbalanced shot—as in, a shot where only the focused-on object is clear. It's a better idea to use a longer exposure by decreasing the shutter speed. It's preferable to use a tripod to prevent shake in this case, as you can get realistic colours and lighting without the uneven lighting conditions given by the flash.

If a flash must be used, then make sure you are standing away from the subject to prevent it getting washed out by the flash.

Using Flash To Remove Shadows

Flashes may be bad in general in indoor photographs or very dark places, but they are a boon in outdoor photography where you have an object or a person facing the camera with the sun or a light source in the background. The flash allows you to get some light to the face of the object and helps avoid complete blackout. Places where this is useful is when you have someone wearing a cap or standing under a roof in the open, or if it's late afternoon or morning with the sun in the background.

Use A Lens Hood

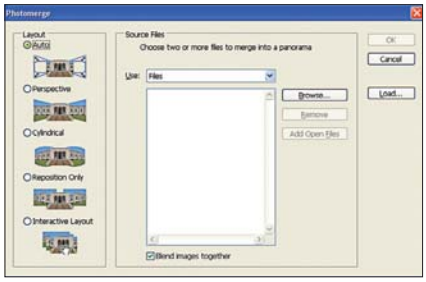
In some of the more advanced digital cameras, the camera manufacturer may provide a lens hood that attaches to the front of the lens. While this will make the camera more bulky, it helps in getteing good photos without lens flare—where one area of the photo reflects too much light—in well-lit-up areas. If your camera cannot have a lens hood, then the other possible way to get rid of lens flare could be to use a UV filter. The UV also helps in keeping your lens safe from dust.

The hood becomes an obstacle in many cases where you use a flash. The flash can get obstructed by the hood and you might end up with underexposed photos—or you may find a prominent shadow of the hood in the photo.

If the hood must be used, a way around this obstacle is to use some amount of zoom in the photo.

Panoramic Photography

Panoramic shots no longer require you to use a tripod and take multiple shots with the utmost care. Photo editing software now can align and then stitch up multiple images together to create a panoramic photo. To create one, zoom out as much as you can so you get the best wide-angle view possible. Stand in one place and take multiple shots one after the other while keeping in mind some line of reference in that view. Capture the next shot with that line of reference in the view.



Making panorama images

Copy the photos to your computer. Start Photoshop CS3. Go to `File > Automate > Photomerge`. Select the photos you took for the panorama and choose the Auto layout. Click OK and give Photoshop some time to stitch the images together. The end image might be very large, so you might want to resize it down.

Using The Self-timer To Avoid Camera Shake

Tripods aren't at times sufficient to stop shake. Some of the movement that occurs is when the shoot button is pressed. Even the slightest movement to the camera can ruin a photo. So even if you do use a tripod, it's best to use a timer of maybe 2 or 10 seconds to be on the safe side.

Using Slow Sync Flash

Slow Sync is a function found on some cameras, which allows the camera to use a longer shutter speed and a flash. Normally, the shutter speed of the camera is set to be really fast to match the flash, which only lasts for a fraction of a second. In such cases, the foreground object ends up very bright and the surroundings completely dark. Slow Sync flash is usually good for better exposure (but can cause motion blur due to the long shutter speeds). The result is a well-illuminated photo, with the surroundings turning out fairly bright.

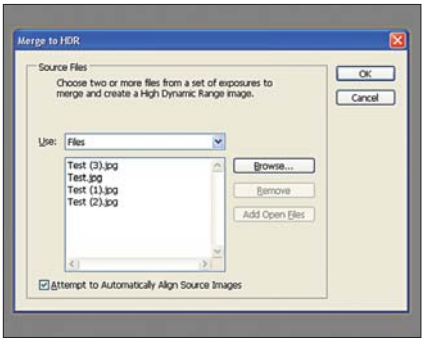
Good Portrait Photographs

Taking portrait photographs is an art in itself. First, you need to have a good subject. Cloudy skies have a soft light but and are bright enough at the same time to get good photos with soft shadows. The portrait mode that is built into your camera might not always be the best way to get great portrait photographs. Try and zoom into the subject and, if possible, select a larger aperture. While focusing, try to leave a lot of the background along with the subject. The subject should preferably be on one side of the image.

Using Shutter And Aperture Priority Modes

Some of the cameras we use have certain semi-automatic modes called shutter priority and aperture priority, which allow you to set a fixed aperture size or shutter speed and the camera to handle the rest of the settings such as ISO.

Use the aperture size to your advantage wherever possible. For example, if you are in a well-lit-up area and a fast-action photograph is to be taken, select a fast shutter speed such as 1/1000th or 1/2000th of a second. Similarly, if you have a low-light situation, select a large aperture size such as F2.8 or F4.



Making your own HDR photos

HDR Photography

HDR (High Definition Range) Photography has just only started picking up. Surprising, because pretty much anybody can create HDR photos without too much of a problem. In short, you require photos to be taken at multiple exposures. To do this, look at the EV (Exposure Value) rating on the camera. You need three photos at least—one taken at 0 EV, one with a positive EV, and one with the same negative value. You can always use many more images if needed. If your camera doesn't allow you to change EV ratings, then manually set aperture and shutter speeds to simulate different exposure values.

There are some things that need to be taken care of. All the photos need to be taken without the camera moving, or any movement in the surroundings, so the use of a tripod is highly recommended here. Some cameras have the option to be able to take photos in quick succession at different exposure values which works like the Burst mode. Use this feature if your camera supports it.

When you have the photos ready, use Photoshop CS2 or Photoshop CS3. Go to `File > Automate > Merge to HDR`. Add the photos you've taken and click OK. Photoshop will create a HDR photo for you which can be further tweaked.

Another commercial software for creating HDR images is Photomatix **(www.hdrsoft.com)**. A free open source software called Qtpfsgui is also available. It can be downloaded from **http://qtpfsgui.sourceforge.net**. An additional set of files may be required for Qtpfsgui to run; the files are available on the download page.

Get your answers on Rediff Q&A

Rediff.com has recently launched Rediff Q&A where users can ask questions and get answers from real people.

It encourages direct interaction between users hence allowing them to generate useful content that can be searched and browsed by others.

Rediff Q&A offers the unique benefit of finding answers to queries that may be difficult to resolve using Web search.

Advertisement

Taking Macro Shots

After you get yourself a digicam, you're bound to try close-up shots sooner or later... this is where you need to enable the macro mode.

Try to get as close as you can to the subject and use a little zoom whenever possible. Also keep the aperture size as low as possible. Using manual focus can give much more accurate results.

Exposure Metering Tricks

A digital camera detects how much light there is to calculate the best settings to get the right photo with the right amount of exposure. Cameras normally have two or three different modes of detecting the amount of light. Some cameras might detect light from the entire view; some just from a spot in the centre.

If you want to lock the exposure to another object, half-press the button to focus to that object, then move the camera to the object you want to shoot without letting go of the click—and then capture the photo.

Using Burst Mode

With scenarios like planes or fast cars, it's very difficult—almost possible—to time your shot perfectly. In such cases, use the burst mode or the continuous mode available on your camera. This will take a continuous set of images as long as you keep the button depressed.

You can choose the perfect photo from the series of images and delete the rest. Burst mode should come in especially handy while taking group photographs.

The Histogram

This is probably one of the most ignored features in a camera. It is usually accessible by pressing a button—look up your manual—and it typically appears at one corner of the LCD screen. It appears too complicated to make any sense, but the histogram is basically just an overview of the image you're looking at. It gives a general idea of the intensity of the different colour tones in the current view.

Generally, a well-balanced image with not too many bright or too many dark spots will display on the histogram without any major spikes or drops but as a fairly even graph.

A flat graph with a sudden spike may mean a photo with lots of dark regions and a small area of very high brightness levels.

Camera Care

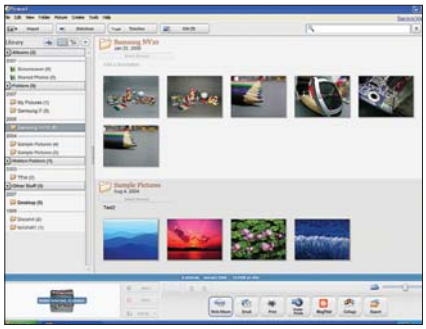
Cameras, no matter what size and shape, are all still pretty delicate devices that need to be handled with care. Here are some useful handling tips.

- Avoid taking your camera exposed in dusty and sandy locations such as beaches. A sand particle can easily lodge itself into one of the many crevices. If this happens, try using a toothbrush gently to dislodge the particles. Do not use the brush on the lens.
- The lenses on most cameras are tiny, and fingerprints or specks of dust get magnified, which means you get a generally smudgy image. Use an air blower or a soft cloth to clean your lens—only if it appears dirty.

Going Online—And Photo Management

Once you own a digital camera, it won't take too long before you have loads of photos piling up on your hard drive. It's a good idea to install photo management software such as Picasa (**http://picasa.google.com**). Once installed, Picasa will scan your drive for photos. Picasa allows you to set comments for your albums. It sorts photos by folders and by month and day. Picasa even allows you to tweak some basic parameters like colour, brightness, and contrast.

Google has a photo hosting site called PicasaWeb (**http://picasaweb.google.com**) which works well with the Picasa software. Uploading photos to your PicasaWeb account takes just a few clicks.

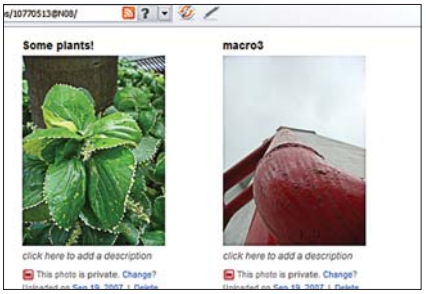


Using Picasa2 to manage photos

Another software that has been making the waves of late is Adobe's Lightroom. It, unlike Google's Picasa, isn't free, but is still a very good photo management and manipulation tool.

Online Photography Communities

One of the most interesting things you could do once you have a digital camera is to join online photography communities. Flickr (www.flickr.com) is probably the most well-known and widely-used. Flickr, now owned by Yahoo!, not only allows you to upload photos, but even join groups of other photographers with similar interests. People can easily search for photos and post comments on them. Use such communities and other photo hosting sites to host photos and then link them to your blog or your personal site. Mail your Flickr album links to your friends and relatives—distributing photos has never been this easy. You can do the same with your videos by registering for a YouTube account, for example.



Save your photographs online to share and back them up

Some General Tips

Here are some general camera tips:

- Avoid taking photos of people from a completely different height. Come down to the level of the subject.
- Whenever using tripods isn't possible, try and use support from a chair or a table while clicking photos. Blurring of images due to longer exposures can be avoided.
- Experiment by taking some vertical photos—some photos are best represented in a vertical layout. Photos taken diagonally can give a unique look.
- Most cameras come with different colour modes such as Black and White and Sepia tone. Try these to give a classic look to your photos. Another thing to try is different white balance settings in different environments.
- Depth of field is a very important part of good photos. Try and use larger aperture sizes to get more depth of field in photos. (We can't go into detail here in terms of depth of field.)
- Avoid taking photos facing a light. Preferably, try and take shots with the light falling on the subject.
- In places where there is abundance of light, use the least possible ISO, the largest F-Number (smallest aperture), and the fastest shutter speed to get the clearest of photos. In case of very low light, select the largest ISO sensitivity and the smallest F-Number, but keep the shutter speed moderately high to avoid motion blurring.

At the end of the day, no rule-book can make you good at photography; creativity, patience, experimentation, and originality will. ☒

Q&A

Your Questions, Our Answers

Questionable licenses and truant uninstallers—all dealt with right here!

Securing The Key

Q I believe Windows XP activation can be backed up to a floppy for later retrieval in case of a reinstall. How is this done?

Sanjay Ghosal

A Create an Activation Status Floppy Diskette: navigate to the `%systemroot%\system32` folder. Copy the wpa.dbl and wpa.bak files to the floppy. Reinstall XP. After the install is complete and the XP Out Of Box Experience (OOBE) window appears—where you'd normally activate the product—decline to activate and let the installation complete. Restart and use `[F8]` to bring up the Advanced Boot Options menu.

Select Minimal Safe Mode here. Navigate to the `%systemroot%\system32` folder. Rename the existing wpa.dbl and wpa.bak files. Using the floppy diskette, copy the previously backed-up wpa.dbl and wpa.bak to the `%systemroot%\system32` folder. Reboot; XP should be activated.

Cracking The Code

Q How do I create a password reset disk for XP, and how do I use it if I lose my password?

Pramod Negi

A There's something called the Forgotten Password Wizard, which allows you to create a password reset disk that can be used to recover password and personalised computer settings if the password is forgotten. The steps to perform the task differ for domain and workgroup scenarios.

If your computer is on a domain, you can create the Domain Password Reset Disk as follows. Press `[Ctrl] + [Alt] + [Delete]` to open the Windows Security dialog box. Click Change Password. Click Backup to open the Forgotten Password Wizard. Click Next, then follow the on-screen instructions.

If your computer is not part of a domain, you can create a Non-Domain Password Reset Disk; the procedure here varies depending on whether you have an administrator account or a limited account.

If you have an administrator account, create an Administrator Password Reset Disk: open User Accounts in the Control Panel. Select the Administrator. Click Prevent A Forgotten Password under Related Tasks. Follow the instructions in the Forgotten Password Wizard. For a Limited Account Password Reset Disk, do the same, but by selecting the Limited User Account instead of Administrator.

Here's how to use the Password Reset Disk to log on to a computer: boot through the disk you created. Click the username whose password is on the recovery disk. Press `[Enter]` or the Right Arrow. This causes the "Did You Forget Your Password?" message to appear. You can click the "?" button to see your password hint. If you have forgotten this as well, you can use your Password Reset Disk to reset your password. This will start the Password Reset Wizard. Follow the instructions and you will be able to set a new password. The Password Reset Disk is also automatically updated with the new password information, so you don't have to create a new password reset disk.

Note that the disk you create can only be used with the computer on which it was created.

Shut Up, Shut Down!

Q When I try to shut down my computer, some applications stop responding and I have to manually end the processes. This doesn't cause any data loss, but it is irritating. Is there a way to automate termination of non-responding processes?

Shripad Gokhale



A Enabling the value AutoEndTasks in the Registry will take care of your issue. This is referred to as "Force Exit." In the Registry Editor, navigate to `HKEY_USERS\.DEFAULT\Control Panel\Desktop`. Modify or create the String Value AutoEndTasks and give it a value of 1. If you only want this setting to apply to the currently logged-on user, go to `HKEY_CURRENT_USER\Control Panel\Desktop`.

Enforcing Change

Q I run a computer class and need the XP computers, which are password-protected, to force users to reset their passwords every month. These computers are not on a domain.

Anirudh Sharma

Illustrations **Harsho Mohan Chattoraj**

Get Help Now!

E-mail us your computing problems along with your contact details and complete system configuration to **sos@jasubhai.com**, and we might answer them here! Since we get many more mails per day than we can handle, it may take some time for your query to be answered. Rest assured, we are listening!

Confound These Formats!

Q **In AVI to DVD software, while converting VCD files to DVD format, the audio stream box is blank. It doesn't show the audio formats. VCDs are generally of the DAT file format. Are AVI and DAT of the same type? Please tell me how to convert VCD into DVD format and vice versa.**

Vipul Shah

A Audio streams of a DVD usually consist of six audio channels, and are Dolby Digital encoded. To decode the audio, you need to have the appropriate AC3 filters installed. In absence of these codecs, the DVD audio cannot be decoded, so you're unable to see anything in the audio stream box. You can download the free AC3 filters from **http://ac3filter.sourceforge.net**. Alternatively, you may also download and install DVD players such as CyberLink PowerDVD 6 from **www.cyberlink.com** or InterVideo WinDVD from **www.intervideo.com**.

The DAT format is different from AVI. DAT is an implementation of the MPEG-1 format, whereas AVI is the native video format used by Windows. You can use software such as Nero Vision Express (bundled with Nero CD/DVD burning software) to convert VCD to DVD and vice-versa. You can also use TMPGEnc from **www.tmpgenc.net/e_download.html**.

QUESTION OF THE MONTH

A There's a setting in the Registry you can change for this purpose. In the Registry Editor, navigate to `HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon`. Modify or create a DWORD Value called PasswordExpiryWarning. For the value data, enter the number of days before expiration for the nag screen (which asks to change the password) to start appearing. Done!

Looking All Over The Place

Q **Whenever I select File > Open in any application and use the Look In section to browse to a location, the application freezes for several minutes. I use Windows XP Professional.**

Rohit G

A You'll need to remove unreachable network connections to prevent the dialog box and application from not responding—Windows tries to populate the drop-down list with these unreachable hosts. In Internet Explorer, select `Tools > Disconnect Network Drive`. Disconnect all network connections that are unreachable. You can know which network connections are unreachable by looking at error messages like "Could not connect to network drive" during XP startup.

Wasted Clicks

Q **Ever since I installed the .NET Framework, XP shows me my username on the Welcome screen and prompts me to click on it before I can proceed to the desktop. This is irritating because I am the only user on my computer and I do not use a password.**

Shahid Gul

A While the following tweak will make for convenience, it comes at a price: the lack of security. Due to the way it is implemented, anyone with local or remote access to the computer can easily navigate to the Registry key and find out your password—you'll need to add one—since it's stored as a plain text string.

Open the Registry Editor and navigate to `HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon`. Modify or create the String Values called DefaultUserName, DefaultPassword, and AutoAdminLogon.

For the first and second, enter the values as the account name and password respectively. Set the third String Value to 1.

Hidden On The CD

Q **Is it true that a free Backup utility is bundled with Windows XP Home Edition? My installation does not have any indication to this effect.**

Deepak Singh

A No Backup icon is present on the Start menu in Windows XP Home Edition, nor is Backup listed in Add/Remove Programs. It's just necessary to do a manual install: insert the CD and navigate to `[CD Drive]:\VALUEADD\MSFT\NTBACKUP`. Double-click Ntbackup.msi to start the Wizard that installs the Backup utility.

Wakey, Wakey!

Q **When I boot into my XP computer, I find that on clicking the Start Menu items, they are unresponsive for up to a couple of minutes.**

Kiran Raaz

A If you are not a part of a network, run msconfig and click the Services tab. Remove the checkmark from Workstation, click OK, and reboot.

If you are a part of a network, open Network Connections in the Control Panel. Right-click your network connection and select Properties. Uncheck File and Print Sharing, and reboot.

In The Beginning

Q **I need to run a batch file every time I boot into Windows. The file should run before anyone logs on. I use Windows 2000 Server.**

S Venkatraman

A Create a batch file named Autoexnt.bat using Notepad—include the commands you want to run at startup in this file. Copy the file you just created, in addition to the Autoexnt.exe, Servmess.dll, and Instexnt.exe files located in the Resource Kit CD-ROM to the `%SystemRoot%\System32` folder. Then run instexnt install. You should receive the following message:

CreateService AutoExNT SUCCESS with InterActive Flag turned OFF

To configure the AutoExNT service to run at startup, go to Administrative Tools and click Computer Management. Double-click the Services and Applications branch to expand it, then click Services. Make the AutoExNT service Automatic.

HOW TO

Get Organised!

Sync your Google Calendar with Outlook and your Smartphone

Jayesh Limaye

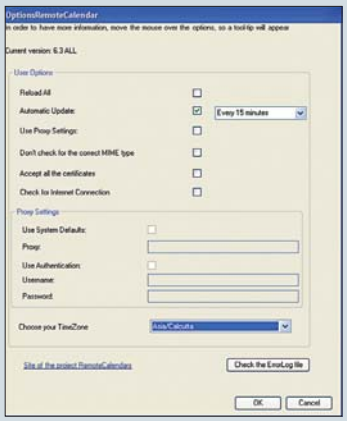
Part I:
Sync With Outlook

With everything going online these days, Google has also entered the "get-yourself-organised" scene with Google Calendar. The advantage with Google Calendar is that since it is online, you do not need to be shackled to a single PC to keep tab on calendar events—you can get this information from almost any PC connected to the internet.

The problem here is that you can only access your calendar as long as you are online. To remedy this situation, there are some applications that help you synchronise Google Calendar with Outlook. RemoteCalendars is one such freeware utility. You can download it from **http://remotecalendars.sourceforge.net**. We will show you how you can synchronise your Google Calendar with Outlook 2003 or 2007 using RemoteCalendars.

Installing RemoteCalendars

RemoteCalendars is a bit tedious to install—first close Outlook if it is open. Install Microsoft .NET Framework 2.0 (if you haven't already) from this month's



RemoteCalendars Options

CD. Extract the contents of RemoteCalendarsSetup-6.3ALL.zip to a folder of your choice. Inside the folder where you extracted files, you will find a Prerequisites folder, from which you must first unpack O2003PIA.EXE and install O2003PIA.MSI. Next, run vstor.exe, in the same folder. Finally, install RemoteCalendarsVSTOSetup.msi from the main RemoteCalendar folder.

Configuring RemoteCalendars

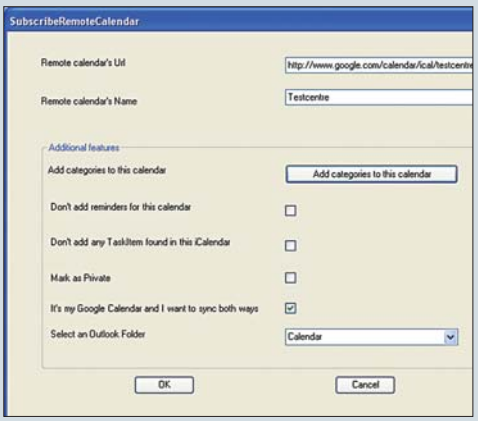
When you launch Outlook after this installation, the Remote Calendar Options window will open. Check the Automatic Update box if you want automatic updates. Click on Subscribe a RemoteCalendar button to add your Google Calendar to Outlook.

In Google Calendar, copy the iCal URL for your calendar's Private Address on the Calendar Settings page—click on Manage Calendars on the left, and in the Calendar tab, click on the calendar name that you intend to work on. Near the bottom of the page, you can get the Private Address of this calendar in XML, iCal as well as HTML formats, select iCal and copy that URL.



Copy the iCal private URL

In RemoteCalendars, paste the iCal URL under "Remote calendar's Url", add the calendar name and check "It's my Google Calendar and I want to sync both ways".



Subscribe to RemoteCalendars

You can categorise the events in your calendar (Business, Personal, Holiday, etc.); click on Add Categories to This Calendar to do so. Finally, enter the username and password for your Google Calendar when prompted. Items added to your Google Calendar will now appear in your Outlook Calendar.

Part II:
Sync With Your Smartphone

You can even carry your Google Calendar in your pocket. GCalSync is an open source application that allows you to synchronise Google Calendar with your mobile phone's inbuilt calendar. You can also download calendar events to your phone and upload them to Google Calendar using this application.

Download And Install GCalSync

To download this Java application, visit **www.gcalsync.com** or better still, directly install it to your mobile phone from **wap.gcalsync.com**. You will find two versions of this application for smartphones—signed and unsigned, and one for the Blackberry. You should preferably install the signed version for your phone, because this won't nag you for Internet access.

Configure GCalSync

Start GCalSync on your mobile—from amongst the different options you see, click Test to see whether your mobile and GCalSync are compatible. This tests the compatibility of your mobile calendar and also whether you have an adequate data connection—which is required for GCalSync to sync with Google Calendar online.

In the Options menu, you can set your user name (without the **@gmail.com**), your password and the calendar address (this is not necessary to be filled if you have filled your user name and password). You can also specify the period over which the calendar needs to be synchronised under Sync period. Finally, you can specify your time zone and decide whether you want one-way or two-way calendar synchronisation, and the direction of synchronisation (phone to Google or vice versa) in the Upload / Download options.

Select the Sync option to synchronise. If you want a complete resynchronisation of calendars, you should select Full resync. ☒

jayesh_limaye@thinkdigit.com

Link Unlinked

Q When I click on a hyperlink—or if I right-click on one and select Open in New Window—nothing happens, or a blank window opens. I use Windows XP SP2 and IE6.

Durgesh Parakh

A This can happen when certain files in Windows are improperly registered. Quit all running programs. Run regsvr32 urlmon.dll. You should receive the "DllRegisterServer in urlmon.dll succeeded" message. If this does not resolve the problem, repeat the regsvr32 command for each of the following files: Shdocvw.dll, Actxprxy.dll, Oleaut32.dll, Mshtml.dll, Browseui.dll, and Shell32.dll. Restart your computer for the changes to take effect.

The Gift Of The Tab

Q My Display Properties does not display the Desktop tab... why?

Saurabh Sikdar

A Your problem is likely caused by improper Group Policy settings. To restore the Desktop tab, run gpedit.msc. Navigate to User `Configuration > Administrative Templates > Windows Components > Windows Explorer`. In the right pane, double-click Turn On Classic Shell. Set the radio button to Not Configured and click OK.

It's My Business!

Q I share my XP computer with my younger brother, who fiddles with my settings. I use Outlook Express and want to prevent him from making changes to my account settings.

Balbir Sandhu



A Make sure your brother doesn't read this! In the Registry Editor, navigate to `HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Outlook Express`
Modify or create a DWORD Value called No Modify Accts.

Giving it a value of 1 will mean no modifications will be allowed, and 0 will reverse that.

Into The Void

Q The Device Manager on my computer appears empty. I use Windows XP Pro.

Rasik Mehta

A A blank Device Manager window appears if the Plug and Play service is turned off or disabled. Just re-enable the service: run services.msc. Double-click Plug and Play. If you receive a Configuration Manager dialog, just click OK. In the Startup Type list, select Automatic. Close the Service Manager and restart.

Exit Interrupted

Q Whenever I try to shut down my computer, I get a message: "DEVLDR Not Responding." When I click End Now, the computer stops responding and I am unable to shut down Windows safely. I have a Pentium II processor, and I recently installed a LeadTek WinFast TV-Tuner and a Creative SoundBlaster Live! card.

Neeraj Baweja

A Uninstall the Creative SoundBlaster Live! driver and install the default one that came with XP (you may be prompted to insert your XP CD). Your sound card will not work with this driver; you need to install a patch from **http://www.softwarepatch.com/utilities/creative-live3.html**. Your problem should be solved.

Who Am I?

Q When I open System Properties, I get an error message: "Application has failed to start because Framedyn.dll was not found."

M Jamadagni

A Either Framedyn.dll is damaged or missing, or the Windows Path environment variable does not point to the `%SYSTEMROOT%\System32\Wbem` folder. This requires you to:

Replace the Framedyn.dll file: In the Run dialog box, type in `%systemroot%\system32\dllcache` and click OK. Copy framedyn.dll. Then type `%systemroot%\system32\Wbem` into the Run dialog box and click OK. Paste your file there. Click Yes if you are prompted to replace the existing file.

Verify system variables: Right-click on My Computer and select Properties. You may get an error message; just click OK. Under the Advanced tab, click Environment Variables. Under System Variables, click Edit. If no Path variable is listed, click Net. In the Variable name box, type Path. In the Variable value box, type `%SystemRoot%\system32; %SystemRoot%; %SystemRoot%\System32\Wbem`. Click OK three times.

Confound These Formats!

Q In AVI to DVD software, while converting VCD files to DVD format, the audio stream box is blank. It doesn't show the audio formats. VCDs are generally of the DAT file format. Are AVI and DAT of the same type? Please tell me how to convert VCD into DVD format and vice versa.

Vipul Shah

A DVD audio streams usually consist of six audio channels, and are Dolby Digital encoded. To decode the audio, you need to have the appropriate AC3 filters installed. If you don't the DVD audio cannot be decoded, so you're unable to see anything in the audio stream box. You can download the free AC3 filters from **http://ac3filter.sourceforge.net**. Alternatively, you may also download and install DVD players such as CyberLink PowerDVD 6 (**www.cyberlink.com**) or InterVideo WinDVD (**www.intervideo.com**).

The DAT format is different from AVI. DAT is an implementation of the MPEG-1 format, whereas AVI is the native video format used by Windows. You can use software such as Nero Vision Express (bundled with Nero CD/DVD burning software) to convert VCD to DVD and vice-versa. You can also use TMPGEnc from **www.tmpgenc.net/e_download.html.** ⊠

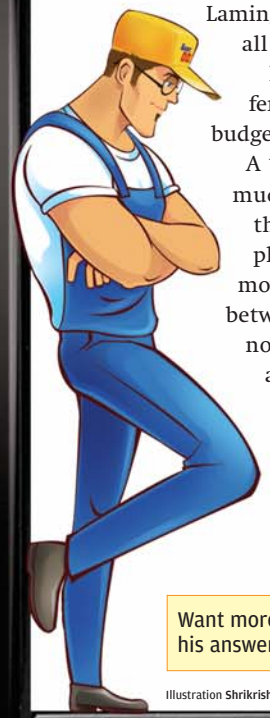
Agent 001

Live On The Wide Side

Two friends drag Agent 001 with them to buy LCDs. They do; he decides to wait for yet another price drop

As it happened, one day two of my friends got up and decided they wanted to get their computers slim and fighting trim. They had already upgraded their display cards (I'm talking about the same troublesome duo I mentioned last month), and were now looking for something beyond 17-inch CRTs, those eye-straining behemoths of old.

So we had a powwow on Friday, and 11.30 AM Saturday was set as the deadline to get to Lamington Road. We were armed with all the basic knowledge about LCDs, although each had different requirements and differing budgets for the "ideal" monitor.



A 17- or 19-inch monitor is pretty much de facto now. Don't even think 15-inch unless you *don't* plan on gaming or watching movies, and the price difference between a 15-inch and a 17-inch is not more than 2,000 bucks anyway. For the record, 17-inchers sport the same native resolution as 19-inch monitors (1280 x 1024). When talking LCD, remember the key word is *native* resolution and not maximum resolution.

Want more of Agent 001? Turn over to read his answers to your buying questions

Illustration **Shrikrishna Patkar**

Then there's the whole widescreen-or-not decision. Basically, office work, Internet browsing, image editing, etc., are accomplished well enough with a regular screen. Movies and HD content means widescreen. Games are a mixed bag—some support WS resolutions and some don't. Most of the later ones do, so WS gets another point here. Having a wider viewing angle is great for most games!

Upon reaching The Good Old Road, we walked into one of the bigger shops—a vendor I had patronised before. We looked at 17-inch monitors first. ViewSonic has a 17-inch widescreen (quite a rarity for this size!). The va1703w costs 9,000 bucks. Someone who wants widescreen on a budget should look here. Samsung's 740N is available, but isn't a viable option considering the price—Rs 9,500. BenQ's FP71G+ is another good buy in the non-WS category—only 10,200 bucks.

The 19-inch category sees Samsung's 940BW—now at a great price of Rs 13,000. This monitor has one of the narrowest bezels I've ever seen—great aesthetics. The ViewSonic va1912w is another option here at Rs 12,000. The va1930wm is similar to the va1912w; priced just Rs 300 higher, it looks a little better and has speakers inbuilt. All three of these widescreens support 1440 x 900. BenQ's FP92W is another widescreen option, again about Rs 13,000. Yet another option is Acer's AL1916W, again 13K, although this one has only analogue connectivity. Incidentally, there's an AL1916 (the missing "W" denotes no widescreen—for a scant 500 bucks less).

The shocker was the 22-inch category. At 1680 x 1050, these monitors used to cost upward of 22,000 bucks just around eight months ago. The ViewSonic vx2235wm, which we tested in May of this year, was now happily selling for Rs 16,800! I was also surprised to see BenQ's FP222W costing Rs 18,900. If you indulge in multimedia, then by all means go for the vx2235wm or the FP222W.

Acer's AL2216W is just Rs 17,000, but it doesn't have DVI connectivity. This dealer said he could arrange for a Dell monitor, the E228WFP (a 22-inch monitor), which would be Rs 18,500. Dell doesn't sell monitors directly through vendors, but has an online shop. Buying through vendors who have *jugad* is only advisable once you've found out the exact price by getting in touch with Dell and comparing it with the best price the dealer is able to give. You need to tread softly here—it's your hard-earned cash we're talking about!

Now BenQ's excellent FP241W was available on demand, but at a jaw-dropping Rs 44,000, this 24-incher is strictly for the rich. Bear in mind it has Component and S-Video connectivity, so consoles like the X360 and the PS3—and even DVD players—can be hooked up. Finally, the HDMI connect is a big plus, and makes this offering future-proof. Incidentally, this monitor fully supports a resolution of 1080p.

Friend #1 went with the ViewSonic va1703wm—9,000 bucks was the best price we could get. My second friend was torn between a 19-inch widescreen and a 22-inch widescreen. We took a break and lunch during which I tried to sway him towards the larger one. He is, incidentally, a movie freak—like me. Eventually I convinced him to splurge on the vx2235wm. We ended up paying 16,500 bucks for that.

On the way back, I was again ribbed endlessly—for not having been decisive enough to make a purchase. To be honest I've been eyeing 24-inch LCDs, but the exorbitant prices keep putting me off. I anticipate a fall in their prices over the next few months—so I'm sitting this one out. ⊠

External Portable Hard Drives

WD Passport Portable (Black)

⊞ Excellent performance, good value

⊟ None in particular

Contact Champion Computers Pvt Ltd
Phone 011-26214751
Web site www.championindia.com
Price Rs 6,500



Internal DVD-Writers

Lite-On LH-20A1P

⊞ Fast performance, 20x writing to DVD+R and DVD-R

⊟ None in particular

Contact Mediatech India Distribution Pvt Ltd
Phone 022-26361111
E-mail digit@mediatechindia.com
Price Rs 2,095



Digital Cameras (High-End)

Canon PowerShot A570 IS

⊞ Good overall performance

⊟ Lacking in macro performance

Contact Canon India Pvt Ltd
Phone 1800-345-33-66
E-mail info@canon.co.in
Price Rs 15,995



Graphics Cards (High-End)

Galaxy GF8800Ultra

⊞ Sheer performance

⊟ Heats up

Contact Technology and Gadgets
Phone 022-23823331
Web site www.technologyandgadgets.com
Price Rs 35,000



Internal SATA Hard Drives

WD Caviar SE16 WD3200AAKS

⊞ Value for money, performance

⊟ None in particular

Contact Champion Computers Pvt Ltd
Phone 011-26214751
Web site www.championindia.com
Price Rs 4,500

Internal SATA Hard Drives

WD Caviar SE16 WD5000AAKS

⊞ Fast transfer speeds

⊟ None in particular

Contact Champion Computers Pvt Ltd
Phone 011-26214751
Web site www.championindia.com
Price Rs 7,500

Digital Cameras (High-End)

TECH-COM DSC-524X PLUS

⊞ Good features and performance

⊟ Average macro performance

Contact Shree Sagarmatha Distributors Pvt. Ltd.
Phone 011-26428541
E-mail techcom@airtelbroadband.in
Price Rs 5,250

Graphics Cards (Mid-range)

ASUS EN8600GT

⊞ Well priced, fast

⊟ None in particular

Contact Asus Technology Pvt Ltd
Phone 022-67668800
Web site http://in.asus.com
Price Rs 8,800

The A-List

The best products tested so far in different hardware and software categories

Wi-Fi Access Points

Linksys WAP54G

⊞ Great performance

⊟ None in particular

Contact Ingram Micro India Pvt Ltd
Phone 9323112279
E-mail sunil.z@ingrammicro.co.in
Price Rs 3,816

5.1 Speaker Sets

Artis S6600R/FM

⊞ Good performance, radio

⊟ None in particular

Contact Kunhar Peripherals Pvt Ltd
Phone 022-66345758
E-mail mail@kunhar.com
Price Rs 8,500



MP3 Players up to Rs 4,000

MobiBlu DAH-2100

⊞ Good performer

⊟ Tiny screen for video

Contact J.J.Mehta & Sons
Phone 022-24306356
E-mail info@jjmehta.com
Price Rs 4,000

MP3 Players up to Rs 10,000

Sandisk Sansa e250

⊞ Good performance, feature-rich

⊟ Tacky scroll wheel

Contact Rashi Peripherals Pvt Ltd
Phone 022-67090909
E-mail navinderc@rptechindia.com
Price Rs 8,150



Processors

Intel QX6700 Core 2 Extreme

⊞ Extreme performance

⊟ Expensive

Contact Intel Corporation
Phone 080-25075000
E-mail saranya.rustagi@intel.com
Price Rs 52,000

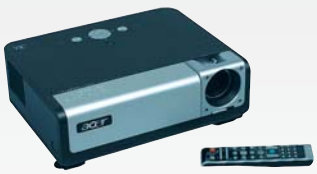
Projectors

Acer PD726W

⊞ Great overall performance

⊟ No remote sensor at rear

Contact Acer India Pvt Ltd
Phone 9880544226
E-mail alankar_s@acer.co.in
Price Rs 1,50,000



LCD Monitors (19-inch)

AOC 1975

⊞ Good looks and performance

⊟ Gloss finish catches smudges

Contact AOC India
Phone 1800-425-4318
E-mail info@in.aocmonitor.com
Price Rs 12,000



LCD Monitors (17-inch)

AOC 177V

⊞ Good performance

⊟ None in particular

Contact AOC India
Phone 1800 425 4318
E-mail info@in.aocmonitor.com
Price Rs 9,800

Desktop PCs
Sahara 20CK16

⊞ Great performer
⊟ Slightly bulky

Contact Sahara Computers & Electronics Ltd
Phone 0120 - 4397777
E-mail info@saharacomputers.co.in
Price Rs 40,000



AMD AM2 Motherboards
ASUS Crosshair AM2

⊞ Great bundle and performance; accessories for the enthusiast
⊟ None in particular

Contact ASUSTeK Computer Inc
Phone 022-40058888
E-mail media_india@asus.com
Price Rs 15,400

Intel High-end Motherboards
Foxconn 975X7AB-8EKRS2H

⊞ Inexpensive, good performer
⊟ None in particular

Contact Mediatech India Distribution Pvt Ltd
Phone 022-26361111
E-mail info@mediatechindia.com
Price Rs 10,750



Intel Mid-range Motherboards
Gigabyte GA-965P-DQ6

⊞ Good build quality and performance
⊟ Expensive

Contact GIGABYTE Technology India Ltd
Phone 022-26526696
E-mail sales@gigabyte.in
Price Rs 16,000

Home Inkjet MFDs
Canon PIXMA MP160

⊞ Good performance
⊟ No memory card reader

Contact Canon India Pvt Ltd
Phone 1800-345-33-66
E-mail info@canon.co.in
Price Rs 5,999

Mono Laser MFDs
Brother MFC-7420

⊞ Great cost per page, fax
⊟ No Ethernet Port

Contact Brother International India Pvt Ltd
Phone 1800 222 422
E-mail customercare@brother.in
Price Rs 18,000



PCI TV-Tuners
Leadtek Winfast PVR2000

⊞ Excellent video quality and software
⊟ Expensive

Contact Topnotch Infotronix (India) Pvt Ltd
Phone 044-42042565
E-mail naqui@zebronics.net
Price Rs 5,500



Mono Laser Printers
HP LaserJet 1020

⊞ Good combination of speed, print quality, and warranty
⊟ A bit slow in comparison to others

Contact Hewlett-Packard India Sales Pvt Ltd
Phone 0124-2566111
E-mail kakuni.mahto@hp.com
Price Rs 6,999

Multimedia Phones Rs 12,501 to Rs 20,000
Sony Ericsson CyberShot K790i

⊞ Great all round
⊟ Cam slider flimsy

Contact Sony Ericsson Mobile Comm. India Pvt Ltd
Web site www.sonyericsson.com
Price Rs 16,222



Up to 12,500
Nokia 6300

⊞ Great screen, build
⊟ Hard joystick

Contact Nokia India
Web site www.nokia.com
Price Rs 11,489

PDA Phones Above Rs.25K
Nokia Communicator E90

⊞ Extremely powerful
⊟ Heavy, bulky

Contact Nokia India
Web site: www.nokia.com
Price Rs 40,499



Up to 12,500
Samsung SGH-E840

⊞ Great build, slider
⊟ Keypad tactility

Contact Samsung Telecomm. India
Web site in.samsungmobile.com
Price Rs 10,700

Office Inkjet MFDs
HP Photosmart C4188 All-in-One

⊞ Good print quality
⊟ No fax

Contact HP India Sales Pvt. Ltd.
Phone 0124-2566111
E-mail kakuni.mahto@hp.com
Price Rs 7,999

PC Webcams
Logitech QuickCam IM

⊞ Strong performer
⊟ Manual focus

Contact Compuage Infocom Ltd
Phone 022 - 65297356
E-mail india_getcreative@ctl.creative.com
Price Rs 1,995



Mice
Logitech MX Revolution

⊞ Has a flywheel
⊟ Expensive

Contact Logitech Electronic India Pvt Ltd
Phone 022-26571160
E-mail response@logitech.com
Price Rs 8,000

Performance Laptops
HP DV6226tx

⊞ Funky Looker, features
⊟ Needs better graphics

Contact Hewlett-Packard India
Phone 0124-2838700
E-mail tapoti-t.tipnis@hp.com
Price Rs 56,990





Those Little Things

Read on to Know More About... six little things you were afraid to express ignorance about

Samir Makwana

The Scroll Lock and Pause Break Keys

`[Scroll Lock]` is pressed to change cursor behaviour while using the arrow keys. It's useful in Excel: it keeps you at one cell, and scrolls the sheet... it's freaky the first time you do it!

`[Pause/Break]` is sometimes used in programming to stop program execution; in some OSes, it is the same as `[Ctrl] + [C]`. Its use in Windows is limited to... almost nothing. All you can use it for is to get to System Properties: `[Windows] + [Pause/Break]`.

The Speech Feature And The Task Scheduler

No-one normally uses these items in the Control Panel: Under Speech, you'll find XP's text-to-speech engine. It can be used for listening to e-books, but most people do it for fun and giggles. Now the Task Scheduler is actually useful: you can schedule tasks on a daily or weekly basis—or on a yearly basis if it strikes your fancy. You could schedule an anti-virus scan every third evening, for example—in case you forget.

Those Letters In Word's Status Bar

In a Word 2003 (and earlier) window, the status bar shows "REC", "TRK", "EXT", and "OVR". What do they do, anyway?

The Overtype mode kicks in when you press the `[Insert]` key by mistake. "OVR" becoming dark means Overtype mode is active. To disable this while working in Word go to `Tools > Customize > Keyboard button > Categories section > All Commands > Commands > Overtype > Current Keys > Insert > Remove`.

REC: When a macro is being recorded, the "REC" in the status bar turns dark.

TRK: Shows the "track changes" status during the document reviewing stage—whether it's on or off.

EXT: Double-click EXT, and the "extended selection" mode kicks in. Place your cursor at a point in the document, click elsewhere and *everything* up to that point is selected.

Browser Status Bar Messages

They're at the bottom left of the browser window. IE, with each iteration, is getting skimpy on the messages—so let's look at Firefox. When you type in **www.google.com** into the address bar, here's the typical sequence of events:

▸Looking up **www.google. com:** The browser looks for the IP address of **www.google.com**.

▸Connecting to...: The site has been found, and a TCP/IP connection is attempted.

▸Connected to...: The site is aware that this browser wants data from it.

▸Waiting for...: The pause before the site responds to the request for data that your browser has sent out.

Trackbacks And Permalinks

The Trackback thing is a way of letting a girl called Sheila who posted a blog post X know that you liked (or hated) X, and that you've linked to it. So here's what happens: when you look at post X, you'll notice something like "Trackback URL for this entry: ABC." ABC is a link. You copy ABC and paste it into a blog post of yours. This action actually tells Sheila's blog that you linked to X.

The purpose here is two-fold. First, you're linking to X in *your* context, and second, Sheila's readers can now come to your blog and thus see where and why her post X was quoted.

Permalinks are pretty straightforward: they're links to the posts you read. Yes, when you read a post, you'll see a link called "Permalink" (short for, of course, Permanent Link). Click on it and you'll get back to the same post—usually on a page of its own.

The more important purpose is to have a sort of home for the post. If you come across a *post in a blog* and want to bookmark it, you'd have the tendency to bookmark the *blog*—and then when you return to it, you might see that the post has gone into the archives and isn't there any more. So remember to bookmark Permalinks instead.

Query Strings

A long time ago, URLs were like this: **http://www.TheGoodOldTimes.com** (Don't go there; it's all Dutch to us.) These days, you see links like **http://LifesGottenComplex.com/cgi-bin/incomprehensible?query=askme&response=iwonttellyou&blah=yadayada&...** you see this all the time. The simple answer to this is that the part of the URL after the question mark is the query string—data that is passed to Web applications. The ampersands are the separators; the equal-to signs indicate what data is the answer to what field (as in, say, **search_term=what_i_am_looking_for);** and, simplistically, the query string is passed to a program that does the required work for you—such as fetching search results. When something that is fetched is encrypted, the query string is much longer, and cannot be bookmarked—of course you can select "Bookmark this page", but when you return to it, you'll typically be taken to the login page.

So now you feel just that little bit more in control of what you see on-screen, don't you? Do yourself a favour: question every little thing you see, get the (often simple) answers, and you'll begin to think you're a geek. Go ahead boost your ego.

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Imaging: Nilanjan Ghosh



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Tech Careers

Securing Your Future

The sheer range of industries it finds a place in, and the increasing demand for trained professionals, mark IT security as an attractive and lucrative career option

Asfaq Tapia

From the healthcare to the manufacturing sector, everyone is enjoying the advantages of being networked. As interconnectivity increases, so do its risks and perils. The number of security breaches in India has increased dramatically in the last one year alone. Just to cite a few examples, a security breach at HSBC's offshore data-processing unit cost them £233,000 (Rs 1.9 crore); the recent Monster.com breach resulted in the theft of personal data of 1.3 million users; the Bank of India Web site was infected with thirty-one Trojans that downloaded to user's computers when they visited it. These remind us of the importance of security in the IT sector.

In its latest report on the future of the IT security market, Analyst firm Global Industry Analysts (GIA) predict "stupendous growth," suggesting revenues may exceed $79 billion (Rs 32,000 crore) by 2010. This study backs up a recent Frost & Sullivan report on the security services market, which is predicted to reach $2,900 billion (Rs 12,000 crore) by end 2007.

The security sector offers one the opportunity of being up-to date with the latest news, software, and security exploits of the day. If you have the aptitude to learn something new every day, and if you have the slightest interest in news of viruses and the like—read on!



Illustration Chaitanya Surpur

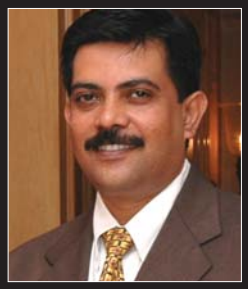
Getting Started

There is no specific emphasis given to the subject of security in any software engineering or graduation degree syllabus. Computer education in India focuses on grooming students to be software application developers. Therefore to find a place in the Security market, you first have to understand it.

This market is layered in three categories: the Product-led, Consulting-led, and Specialist-led approaches. The product-led approach means you'll work with companies that provide OS-level security, Internet-related security, and anti-virus and anti-spam products. This is the first step towards the security industry. Here, you learn all about a particular security product and specialise in it. This approach branches out into a multitude of designations.

Software Engineer/Developers write secure code that is used to build an application. This code has to comply with security parameters set during the development of the application.

The Future Of The Industry



"The IT Security sector is growing at a phenomenal rate. It is the fastest-growing IT sector in the world in many of the advanced nations. India is soon expected to among the top ten security spenders"

—Kartik Shahani
Regional Director - India
McAfee, Inc



"From a business standpoint, the compelling pressures of complying with law and standards and showing business value and cost-effectiveness for security measures will be one of the main challenges in the coming years"

—K S Ganesan
CTO, Microland Ltd



"Solutions with proactive blocking capabilities are gaining traction in India and are expected to overtake traditional Intrusion Detection solutions in the near future"

—Lokesh Mehra
CTO and Regional Manager - Corporate Responsibility
Cisco - South Asia



"Five to 10 years down the line, when all data will be networked, it will be a big challenge to keep it secure. This will lead to a huge demand for security professionals"

—Manish Kumar
CEO
Rooman Technologies



"Security will become all-pervasive, and the goal is for it to be non-intrusive. From a technology standpoint, it will be deeply embedded in almost all platforms and enterprise applications"

—Niranjan Maka
Head - RSA Development Centre
EMC India Centre of Excellence

To get into the security market, one must have an educational background that covers the basics of networking, C/C++, and scripting languages

System Administrators are involved in security administration and monitoring of networks, along with the application security environment in an organisation. Their role includes implementation of firewalls and monitoring a Virtual Private Network environment on the network perimeter of the organisation.

Desktop Security Administrators manage and deploy anti-virus and anti-spam software, and are involved in patch management and malware support in any organisation where multiple workstations have to be updated with the latest security patches and kept virus-free.

After you have served on the product-led side for six to seven years, you can get into the more vendor-neutral role of the consulting-led approach. This role requires a deep understanding of networking and security concepts implemented across organisations. You'll be in charge of recommending security enhancements to organisations.

Then, after four to five years of consulting, one can move on to specialise in niche segments of security. Functions include Hacker Attack Analysis, Vulnerability Analysis, Ethical Hacking, and Forensic and Penetration Testing.

Enlightenment

To get into the security market, one must have an educational background that covers the basics of networking, C/C++, and scripting languages. These are covered in courses like B.E., B.Tech., BCA and some B.Com. courses which have Computer Science as a graduating subject in a few state universities. Colleges affiliated with the All India Council of Technical Education (A.I.C.T.E.) are a safe bet to start from.

Alternatively, diploma courses on the basics of networking, C/C++, and scripting languages from NIIT, Aptech Computer Education, and Rooman Technologies among others, are also accepted by organisations and will secure a good foundation your future.

These university and diploma courses will help you get your first job as a software engineer / developer in the software industry. Those willing to further their education can go on to complete their Masters degree—as in M.E., M.Tech., and MCA. Since some subjects in M.E., M.Tech., and MCA degree courses teach the principles of networking and security in detail, companies naturally prefer candidates with a Masters degree over those with a Bachelor's degree while recruiting. Even further on in your career, the Master's degree will definitely be an add-on.

Apart from the above, there are industry certifications that you can obtain to add value to your résumé. Some certifications are very vendor-specific, meaning they deal with the security of products created or endorsed by the vendors offering the courses: for example, the Microsoft Certified Professional (MCP) exams that are security-related. Microsoft Certified Systems Engineer (MCSE) with a specialisation in security, Checkpoint Certification as Checkpoint Certified Security Engineer (CCSE), and Cisco Certified Security Professional certifications are more examples. If one were expected to deploy, configure, manage, or architect environments largely encompassing products from a single vendor, these certifications would definitely help: later on in their careers, security professionals in some positions may be expected to know and support products from multiple vendors. For example, even if you have an MCSE certification, the company you work for might ask you to configure a hardware firewall that may be provided by a different vendor.

After serving on the product-led side for six to seven years, you gain enough experience to offer your expertise as a Security Consultant. This role involves you to have a vendor-neutral objective of security. This is because different companies may have differ-

Entry-Level Certifications

For the entry-level aspirant in the product-led approach, one can take up quite a few certifications. The most popular amongst these are CompTIA Security+ and the SANS GIAC Security Essentials Certification (GSEC). The Check Point Certified Security Administrator (CCSA) is another product-specific certification worthy of mention.

Name	URL
Brainbench Internet Security Certification	www.brainbench.com/xml/bb/common/testcenter/taketest.xml?testId=110
Brainbench Network Security Certification	www.brainbench.com/xml/bb/common/testcenter/taketest.xml?testId=30
Check Point Certified Security Principles Associate	www.checkpoint.com/services/education/certification/certifications/ccspa.html
Check Point Certified Security Administrator	www.checkpoint.com/services/education/certification/certifications/ccsa.html
GIAC Certified ISO-17799 Specialist	www.giac.org/subject_certs.php#G7799
GIAC Information Security Fundamentals+	www.giac.org/subject_certs.php#GISF
GIAC IT Security Audit Essentials	www.giac.org/subject_certs.php#GSAE
GIAC Security Essentials Certification	www.giac.org/subject_certs.php#GSEC
Microsoft Certified Systems Administrator: Security	www.microsoft.com/learning/mcp/mcsa/
Security Certified Network Professional	www.securitycertified.net/certifications.htm
Security+	www.comptia.org/certification/security/
Symantec Product Specialist	www.symantec.com/education/certification/progdesc1.html
Symantec Technology Architect	www.symantec.com/education/certification/progdesc1.html
Systems Security Certified Professional TruSecure ICSA Computer Security Associate	www.isc2.org/cgi/content.cgi?category=20 ticsa.trusecure.com/

ent IT configurations, ranging from the workstations used to the kind of routers and switches used for networks in the company. While pursuing a consulting career, a vendor-neutral certification like Certified Information Systems Security Professional (CISSP) is highly recommended since it covers a wide range of Information Security topics. Experience of around four years in network security usually gives you enough knowledge to get the CISSP certification.

The SANS Institute's Global Information Assurance Certification (GIAC) family of security certifications **(www.giac.org)** is also valuable. The certifications and training courses offered by SANS are geared towards hands-on technical computer security professionals who have decided to specialise in niche security areas such as intrusion detection, incident response, and so on. GIAC offers certifications in areas like security administration, operations, legal, audit, and software security.

After working as a Security Consultant for four to five years, one can super-specialise in niche segments of the industry. The International Council of Electronic Commerce Consultants (EC-Council) comprises a group of professional organisations, whose members are security companies. The purpose of the EC-Council is to support and improve the role of individuals and organisations that design, manage, or market security and e-business solutions. Their Certified

Some certifications are very vendor-specific, meaning they deal with the security of products created or endorsed by the vendors offering the courses



"Another challenge is keeping up-to-date with the latest trends and the newer kinds of attacks / malware."

Certifications for Security Consulting

When working as a security consultant, certifications, as mentioned earlier, help enhance your understanding of niche security concepts. The more common ones are Certified Protection Professional (CPP) and Physical Security Professional (PSP) from ASIS International, and the GIAC Security Expert (GSE).

Name	URL
Advanced Information Security Certification	www.securityuniversity.com/certification.php
Certified Protection Professional	www.asisonline.org/certification/cpp/index.xml
Check Point Certified Managed Security Expert	www.checkpoint.com/services/education/certification/certifications/ccmse.html
Check Point Certified Security Expert	www.checkpoint.com/services/education/certification/certifications/ccse.html
Check Point Certified Security Expert Plus	www.checkpoint.com/services/education/certification/certifications/ccse_plus.html
GIAC Security Expert	www.giac.org/track_cert.php
IBM Certified Advanced Deployment Professional (Tivoli Security Mgmt)	www-1.ibm.com/certify/certs/tvadse03.shtml
Information Systems Security Architecture Professional (CISSP Concentration)	www.isc2.org/cgi-bin/content.cgi?page=8#cat06
Information Systems Security Engineering Professional (CISSP Concentration)	www.isc2.org/cgi-bin/content.cgi?page=8#cat06
Information Systems Security Management Professional (CISSP Concentration)	www.isc2.org/cgi-bin/content.cgi?page=8#cat06
Physical Security Professional	www.asisonline.org/certification/psp/pspabout.xml

Ethical Hacker (CEH) program, CHFI (Computer Hacking Forensic Investigator), and LPT (Licensed Penetration testing) programmes certify individuals in the network security discipline of Ethical Hacking from a vendor-neutral perspective.

Brownie Points

Candidates with hands-on experience of installing, maintaining, and troubleshooting security issues on a domain are sought after. However, no-one will get you to manage their security if you don't have any experience! To get around this all-too-common problem, you could begin by networking computers and setting up security policies on the domain in an NGO or small organisation for free; after all, it's the experience that counts. That apart, one needs to develop deep expertise in one specific area of security to get further. Experienced candidates with industry certifications are given first preference. Soft skills are a must at any level. Leadership skills, presentation skills, and such also come in handy, especially in consulting.

Advice For Freshers

Since the industry believes in hiring experienced candidates for higher positions, it is important to gather certifications and gain hands-on experience before trying to edge your way into the industry. Most candidates get placed via campus recruitments; in such a scenario, when you show experience—as in part-time jobs or self-undertaken projects and such—you have a better chance of getting through than your colleagues.

According to Sanjay Katkar, CTO, Quick Heal Technologies Pvt Ltd, "The challenge in recruitment is to find good developers and researchers. Most of the candidates we see are well-prepared for the job of application developer or a similar position. Candidates with an interest in system-level programming, or those willing to work on reverse engineering, those who have an interest in assembly programming / debugging, are scarce. Another challenge is keeping up-to-date with the latest trends and the newer kinds of attacks / malware."

All fresh recruits undergo an induction and training program, the duration of which varies from company to company. "Most employees change jobs frequently so as to get as much experience as they can on various domains and security setups," says a security industry official who does not wish to be named.

Money Matters

Remuneration offered to fresh recruits is between 1 to 2 lakh per annum. It is an unofficial rule of thumb that salary increases by a lakh with every added year of experience. Salaries may take longer to go up in the product-led approach we spoke about earlier.

Remuneration in the consulting-led approach depends on the certifications you have under your belt and the number of years you have served in the industry. A security consultant with four to five years of coding experience and one to two years of consulting experience can expect between 10 and 12 lakh per annum.

When you reach the pedestal of the specialist-led approach—with at least 14+ years of experience—salaries can cross 20 lakh per annum.

The security industry is at the cusp of an explosion in India. Though it takes longer to be promoted to higher positions than in most industries, salary increments are at par with the best. Earning more and more certifications is the key to getting better job opportunities here. ⊠

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Click, Pick And Choose

Six entrepreneurs cash in on a novel idea: renting out books from an online store—and taking care of the troublesome details

Samir Makwana

It is the age of the mouse potato. Yet, it is also an age when people like the feel and experience of physical books—even with e-books all over the Internet.

Those who watch a lot of movies would appreciate the fact that the renting out DVDs for an unlimited period of time is a good idea. It is indicative of a good business model: ultimately, no-one watches a DVD more than, say, twice or thrice, but the idea that you aren't time-bound plays a psychological role. It means freedom.

Although we're not focusing here on DVDs, we must mention the success of Netflix.com, launched in 1999 in the United States. The idea was novel—one of those "Why didn't we think of it before?" moments for those who hadn't thought of it before. Think about it: being online, doing a bit of browsing, clicking something, and having a DVD delivered to your doorstep—then keeping as long as you'd like, and dropping it in the mail when you're done watching it. That's a business idea at its best, one that spawns similar ideas. In fact, we have Netflix clones in India—Seventymm.com, Catchflix.com, and others. All sites claim—and seem—to have reasonably large collections, though not yet quite in the league of Netflix.

Now, books being more of an old-world commodity than DVDs, it might seem odd that someone thought up the idea of renting out books à la Netflix—BookSwim.com in the US, August of 2007.

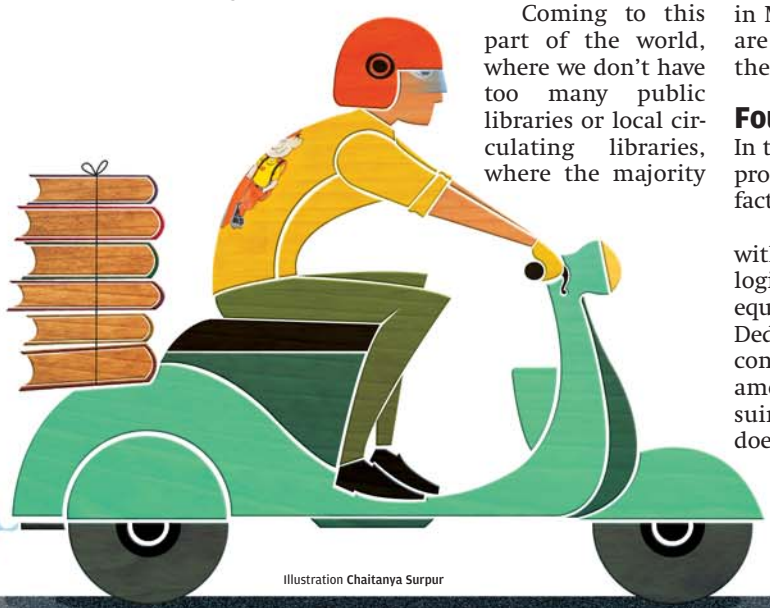


Illustration **Chaitanya Surpur**

Coming to this part of the world, where we don't have too many public libraries or local circulating libraries, where the majority hasn't been introduced to the idea of e-book reading yet, but where more and more people are getting online, how does the idea of an online book rental store sound?

Conception

Nine years after having studied together, six friends, now in diverse fields, met to discuss a business venture. Avid readers all six of them, the venture, naturally, was to focus on books.

Possibly inspired by Netflix, possibly by BookSwim, we don't know—Hiten Dedhiya, Hiten Turakhia, Dhairyasheel Pawar, Shibanarayan Rath, Amit Gala, and Kunal Gala discussed, in October 2006, the possibility of renting books online. It was Dedhiya's idea; they decided on a *desi*-sounding name, one that carried the "friendly neighbourhood" motif. Thus was born Librarywala.com.

Creation

This a Web site where you can create a list of books from an online catalogue, then order them—and Librarywala will deliver them to your doorstep free of cost. The site started off in August 2007; their area of operation is limited to Mumbai as of now, and the collection stands at 8,500 books from most popular genres.

In Amazon-like fashion, details such as a brief description of every book, author, publisher, number of pages, and more are listed, along with a photograph of the cover. Payment can be made by cash or cheque pick-up, or by credit / debit card.

If a book one selects is available, the Librarywala team guarantees to deliver it to any address in Mumbai within 24 hours. Even if the books are not available, the team promises to procure them in 21 days.

Foundation

In their college days, the six friends struggled to procure books to feed their reading habit. That, in fact, was the motivation, the driver.

Hiten Dedhiya, a management consultant with five years of experience in strategy design, logistics, operations restructuring, and private equity conceived the actual idea of Librarywala. Dedhiya recollects his past: "The six of us would contribute, buy books, and circulate them amongst ourselves. I therefore thought of pursuing a venture such that today's generation doesn't miss out on books like we had to."

He discussed his idea with Hiten Turakhia, a software professional managing his own IT solutions company. They then decided to share the idea with the four other friends.

Before documenting the project plan, each of them volunteered to conduct pilot research to get an idea of the public's response to their concept. All six stood outside libraries and prominent bookstores for hours, trying to get feedback from the book-reading public.

They covered major cities such as Delhi, Mumbai, Bangalore, Kolkata, and Hyderabad. They considered factors like readership, customer reach, availability of infrastructure, and others during the research, analysis and discussion. Finally, they decided to start off from Mumbai, since they believed this was where the readership could be best explored.

Operation

When you come up with the idea for a project like this one, there's a clear route to be followed—after looking back upon the feasibility of the idea.

First, you need to pursue functions such as identifying channel resources, the area of operation, and the target audience. The Librarywala team got in touch with all major book publishers and distribution channels to source the books for their library.

Then comes the site itself—how it will work. What you need to think about how to develop it, test it and fix bugs, enable certified and secure e-commerce features, use CRM (Customer Relations Management) software, secure the back-end IT infrastructure—and you even need to think about such things as taking backups of the database.

Next, you approach Web site developers and discuss requirements. In the case of Librarywala, three final-year students from a software programming and IT course—Rajesh Jain, Nilesh Jadhav, and Shruti Rao—designed and developed Librarywala.com.

The Web site was developed on the .NET 2.0 framework using ASP.NET 2.0, C#, SQL Server, and AJAX. "The initial programming and development of the Web site consumed a lot of time and energy—both ours as well as the programmers'. The entire development and beta-testing of Web site took about eight months—longer than we'd expected," informs Turakhia.

Next comes the core e-commerce aspect: if you're an online business, you'll need services from payment gateway providers and partners such as banks or PaisaPay, which helps you pay through credit card without revealing the number. You then make an application for a Secured Socket Layer certification from a leading SSL Certificate Authority such as VeriSign. In this case, the payment gateway on the site for credit and debit cards employs SSL-based 128-bit VeriSign-certified encryption. Customers' details are stored with the payment gateway.

Now that you've got customers, CRM software is to be used to keep track of what's happening on the site. This can be customised.

Finally, you need to see how you're doing: this means regular reports. At Librarywala, Crystal Reports Server has been installed for daily reports of user registrations, members' book queue lists, and such. These regularly reach at the servers at the main office. The security of the back-end IT infrastructure needs to be taken care of, too.

Using the reports, the team tracks user preferences: which genres top the priority lists, and so on. There is also a referral system in place, à la Amazon: those who read a Jeffery Archer novel might like a John Grisham thriller, for example.

Regular backups of the site content and database takes place in the US, where the Web site is hosted.



"We've used the best available technologies for our site and look forward to imbibe more of it in the future scope of our operations"

Hiten Dedhiya
Director
Librarywala.com



Imagine browsing these shelves without having to haul yourselves out of your chair!

Expansion

In terms of operations, the top priority for the Librarywala team is, of course, to expand their services to more cities. In addition, in order to reach a larger audience, Turakhia mentioned to use their plans to implement a WAP-based service on their Web site; he believes the mobile phone is the next-best source of customers—everyone has one.

If and when proper Global Positioning System services become available, the delivery boys could use GPS devices or GPS-enabled cell phones. The team believes they can save a lot of time in terms of pick-ups and deliveries in one area.

On the cards are services like blogs and forums, where members can interact and share book reviews. There are plenty of precedents that can be looked at here.

Motivation

Turakhia avers, "Technology is a great enabler. It can be leveraged to create sound business models in education, animation, design, and advertising, to name a few."

So what could be next for rentals online? Think about video game discs, since games are notoriously expensive in India—actually, the rates themselves are low, but we're talking about the lure of pirated copies and also about purchasing power. Then, think about rentals of laptops and projectors by small organisations that only need them for a short while. What about cameras? Some people just need a high-end camera for one trip! What about men's formal suits to be used at weddings? Saris? Dresses for *Navratri*? Expensive-looking fake jewellery? Speakers and amplifiers for festive occasions?

Some of these do exist offline, but the point of the Internet is two-fold: that of affording the luxury of not having to get out of home, and that of providing the facility to browse extensively, compare objectively, and so on. This holds even for Librarywala and BookSwim.

From auctions to selling and now renting online, the Internet has created markets where none existed. Business enterprises also reduce costs on inventory.

In all the above—right from the outset—what stands out most is a facet of human nature: the need for comfort. People very often just don't want to get outdoors. They'd like to be in the comfort of their homes. They enjoy the power of the mouse-click. In fact, impulsive mouse clicks result in spending that just wouldn't have been done offline. Think about it. ⊠

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The Smooth Operator

Project management means overseeing the web woven from deadlines, resources, interdependencies, schedules... you know. Thankfully, we have software dedicated to charting it all

Ram Mohan Rao

There's software for everything—whether it's controlling a rocket-propelled spaceship or a coffee machine. There's software for getting in control, getting on top of things, organising things... but you know that. What we're saying is that even if there's something you need to get on top of—like a team project, a personal plan, a group activity—you can use, you guessed it, software!

Here, we're specifically talking about project management. People, resources, time, contingencies—there are parameters of various types at various levels to be in control of. Now, if you're the born leader, manager, and communicator all rolled into one, it's easy—just do it in your head, or use Notepad. But ordinary people need... yes... software!

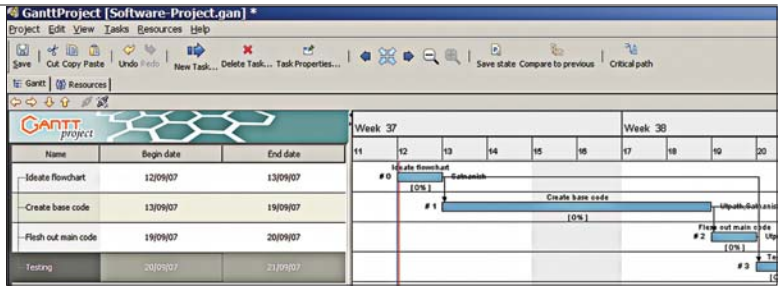
At this point, we should mention that it's natural for some people to think of Microsoft Project. It's not quite de facto, but a large number of people—especially those in enterprises—use it. (We're going to encourage you not to bother, with a couple of exceptions—we'll get to the reasons soon enough.)

One tool that could be useful—if the project is small enough—is a mind-mapping solution; after all, your fundamental agenda only consists of (a) thinking, and (b) communicating. Then, you could use a spreadsheet—for example, Excel as a small-project management tool. This is quite elementary, and is described at **http://tinyurl.com/yutoso**.

Now our agenda here is to talk about a free project management tool called GanttProject, which is really not much more than a productivity booster. But you need it to save on aspirin and to maintain your sanity. You'll have the comfort of starting up a program and saying something like "OK, so here's where we're placed. Now so-and-so is on leave tomorrow, so let me draw this little line... ah, still looks good." Much, much better than straightaway getting tense because so-and-so is on leave tomorrow.



Imaging Shrikrishna Patkar



Too complex a project wouldn't have been rendered well here, so here's just the basics—some people, some tasks, some dates. The left pane contains the details; the right pane displays the Gantt chart. Each task is in its own row, and arrows indicate dependencies. Dates are clearly marked, as are holidays (the grey vertical bar)

To sell you on the idea, think of this: a visual representation of what's going on is very desirable. When you need to reschedule, all you do is type in a couple of quick words and drag a line here and there. Dependencies are programmed in, so you can test ideas one after the other and immediately visualise the what-if. When plans and resources change—as in when someone joins the team or the deadline is pulled back—you quickly know what you should be assigning to whom. You get the idea. And if you're still not sold, consider that you don't lose anything by giving it a trial run using your last project details—which you stored in your head.

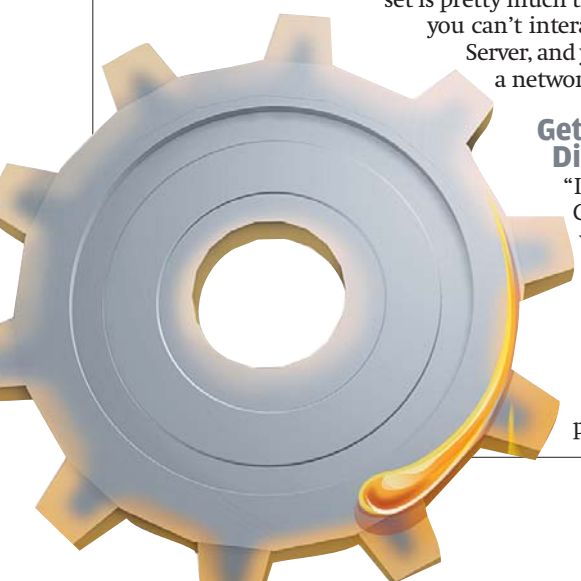
Gaining From Gantt

Think project management and you should think Gantt charts. Put simply, these represent tasks against time, but they're powerful enough to have been used in the planning of such projects as dam and highway construction. If you know what they are, skip this; if you don't, we'll just quote a bit from ganttchart.com. A Gantt chart:

- allows you to assess how long a project should take.
- lays out the order in which tasks need to be carried out.
- helps manage dependencies between tasks.
- allows you to see immediately what should have been achieved at a point in time.
- allows you to see how remedial action may bring the project back on course.

GanttProject, the software at hand, is a small download from **http://ganttproject.biz**. It's for Linux, Mac, and Windows. To straightaway get up and running with it, all you need to be familiar with is the notions of tasks, assignments, and dependencies—which you probably are.

Now if you're thinking this is some old PIM-like productivity software, we can say from personal experience that all that's really there to project management is there in GanttProject. MS Project, incidentally, costs $599 (Rs 24,250), and the feature set is pretty much the same—with two exceptions: you can't interact with a Microsoft Exchange Server, and you can't share the project over a network.



Getting Your Hands Not So Dirty

"Intuitive" best describes GanttProject as a piece of software. All you'll need ready before you start using it is:

- Who's working on the project
- Details such as when they're off work
- A breakdown of the project into tasks
- An idea of how long each task should take to complete
- What task depends on which other(s)
- And so on. You'll realise more details as you get into the software.

Fire it up and you'll see that the act of adding people, adding tasks, and setting deadlines for them is as easy as can be. We first named the thing "Software-Project", and like any good piece of software would, it came up with categories of people to choose from—project head, coder, tester, and so on. Do the elementary stuff and you'll end up with something that looks as above.

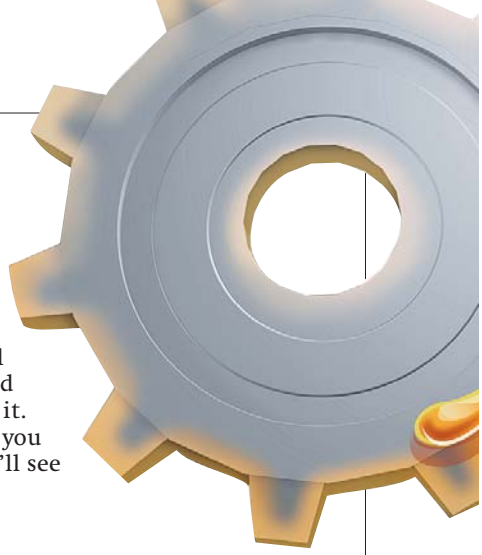
Like any well-behaved Gantt chart, this one shows tasks against time—you can see the dates they're scheduled for, and at a glance, how long each task will take. Now, following the everything-at-a-glance philosophy, we chose to display the task name above the bar that represents the task, the progress of the task below the bar, and the person(s) involved to the right. In regards this last, note that you can assign dependencies. So if you say the coder is "dependant" upon the project head, then whenever you assign a new task to the coder, the project head's name will appear as if he were involved in the task, too. Dependencies between tasks are indicated by arrows. You can also create dependencies using the mouse: click on one task in the Gantt chart, `[Ctrl] + Click` on the other, and select "Link".

On the subject of dependencies, we should mention that they can be of four kinds: start to finish, finish to start, finish to finish, and start to start. "Finish to start" is the obvious one: the second starts when the first has finished. "Finish to finish" means they should end at the same time, and so on.

Now, we should warn you that the help file is skimpy. They aren't too articulate on the Web site, either—so you'll have to find some interesting stuff yourself: for example, the fact that you can change the public holiday schedule (from under the Resources menu).

Indenting and un-indenting tasks is easy, and what this does is this: if task B depends on task A, and you indent B making it a sub-task of A, the dates for task A will automatically change. This is natural, considering the definition of "sub-task."

Importantly, the chart will keep a proper track of progress only if you remember to feed in data on time. Someone completed something? Fill it in. Setback? Extend the task by dragging it using your mouse... And so on.



And that's pretty much it to get up and running with GanttProject, but here's something about the interesting features it brings with it.

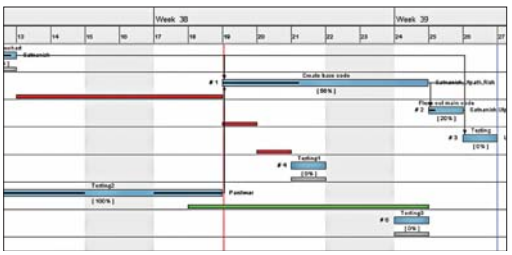
A Features Run-Down

Space does not permit a step-by-step discussion of how to get things done, but then it's pretty easy, like we said.

"Milestone" can be set as an attribute for a task that needs to be watched. We won't go into the details, but suffice it to say that if a "milestone" task has been completed, the graph changes in an interesting way. Try it.

Colour coding seems silly in general: no-one needs pretty, colourful labels, but they're almost of the essence in the at-a-glance school of thought. So, with the default colours, things look pretty staid when everything's going fine; then, when something finishes early, you have a cheerful yellow bar indicating free time; and what's most useful is the red marks, which indicate events that deserve your immediate attention. This works with resources, too: when someone is overloaded, you get a red mark for the day, and also a figure about whether he has 150, 200, etc. per cent more work than assumed. This is indicated so that you buy him a pizza.

An interesting feature added to the 2.0 version of GanttProject—and a very useful one at that—is the ability to compare "states." At any point, you can save the current state of affairs using the `Save state` button, and you can always use `Compare to previous` to look back in time. Imagine you've pushed ahead some deadlines; if you'd saved the state before you did that, you could compare the current project state with the earlier one—and what you'll get are red, green, and yellow bars. A green bar is a pat on the back: this task is still on schedule. A red bar under a task means it's now going to take longer to complete, and a yellow bar means it'll now complete sooner than it would have. Which days the bars come under is dictated by the task's dependencies.



We've compared a current state with an earlier one. Coloured bars appear underneath tasks in date ranges. A red bar indicates a problem that's now holding up the task; green means "on schedule." All at a glance!

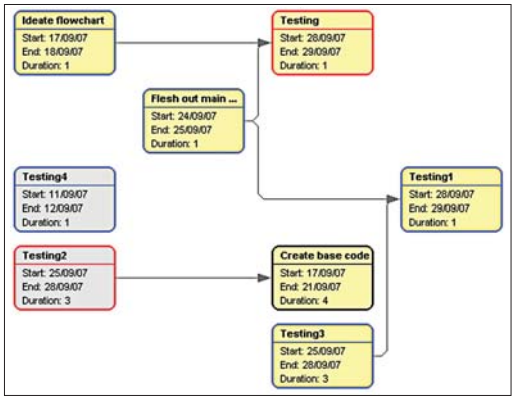
The Critical Path Method (CPM)

GanttProject has the Critical Path function, using which you can see when your project can be completed at the earliest, and what tasks along the path that is displayed need, well, critical attention. From The Free Encyclopedia That Anyone Can Edit, "CPM is an algorithm for scheduling a set of project activities. In project management, a critical path is the sequence of project network activities with the longest overall duration, determining the shortest time possible to complete the project. Any delay of an activity on the critical path directly impacts the planned project completion date."

If you construct a simple project and press Critical path, nothing much will show up—the last task to be completed will get highlighted, and that's about it. You'll see the value of the method when you have a sufficiently detailed project; you'll see bottlenecks you wouldn't have intuited.

The PERT Chart

Another way of looking at things, getting away from Mr Gantt's worldview, is the PERT chart, standing for Program Evaluation Review Technique. This, using GanttProject, looks as below. It has events as nodes, it shows dependencies, there are good-thing-and-bad-news colour indicators, and more. Space does not permit a discussion, but suffice it to say that some project managers prefer the PERT chart over the Gantt chart—and many use both at the same time. Good for us, because GanttProject, untrue to its name, provides both. We'd advise you to get familiar with the PERT chart the do-it-yourself way: create a simple project and look at the PERT chart for it. (The PERT tab is activated from the View menu.)



Each task is a node here. The yellow nodes here have dependencies. Those with a red outline have problems (bottom left, for example). Arrows indicate dependencies; details are in the node boxes

So Download It!

It's not hard to get hooked to this nifty piece of software which, at first glance, seems simplistic. Even individuals could develop a fondness for it, it's so easy to use. But it has sufficient power to aid any business project.

For all we've seen and heard, you won't be getting much of your money's worth if you spend on MS Project—assuming, of course, that you're sold on project management software.

Which is a good thing to happen to you, we should add. It's better than mind maps, it's better than Excel (however familiar you might be with it), and it's better than caffeine overdose. ⊠

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Lead Feature

TAKE TEN

Here's our list of what we think are the best cross-platform games ever

Bhaskar Sarma

If you're reading this magazine, you've probably played video games at least once in your life, be it on those old Sega controllers or on today's mean consoles. Over the years, games have evolved from the simple but highly addictive *Dave* to *Contra* and on to today's near-realistic-physics-and-animation games and massively multiplayer online (MMO) games like *Gears Of War*.

Users of platforms other than Windows have always felt like second-class citizens when it comes to gaming. Hardware and software issues forced gamers to stick to Windows when they wanted their dose of guns, cars and the occasional babe. Graphic cards had drivers only for Windows, and lesser users were stuck with poor graphics. Even if you didn't mind playing without the eye-candy on, most games required DirectX 8 or higher.

It's better now, though. Both NVIDIA and ATI have released Linux drivers for the GeForce 8800 and Radeon series cards respectively. Game developers have started using OpenGL, an open source 3D graphics API, which is compatible across most platforms. More graphics cards are now compatible with OpenGL.

All this has contributed to increased attention to gaming on non-Windows platforms. Many developers have opened up the source code for commercial games (*Quake 3* is a good example). Linux ports of commercial games like *Quake 3*, *Doom*, *Neverwinter Nights*, and *Unreal Tournament* have been released by the developers, while third-party companies have ported many Windows games to Linux. In addition, some open source projects have aimed at remaking classic proprietary games into open source or free versions (such as *FreeCiv*, a remake of *Civilization II*, while OpenTTD is inspired by *Transport Tycoon Deluxe*).

Here, we've picked 10 games from diverse genres: FPS, RTS, Simulation, Racing, RPG. Some are free, some are paid. All of them run on at least Windows and Linux. May the strategising, shooting, and non-blinking of eyes begin—but remember to eat and sleep!

Sauerbraten

http://www.sauerbraten.org

A FPS deathmatch game based on the very popular *Cube*, *Sauerbraten* is strictly for the trigger-happy: shoot, duck, and then shoot some more! It's a free and open source.

Frankly, the game has no storyline. You are plonked into the middle of a map: choose from Jungle, Factory, Shade, and many other options. Grab those guns, ammo packs, and rocket launchers lying around—and start shooting at critters that swarm from all around. Your enemies look like they came straight out the dreams of a darkly disturbed teenager—misshapen trolls and human-headed tyrannosaurs who go by names like Slith and Rattamata. Depending on the skill level, the gameplay becomes more fast and furious.


Gotta blast somebody off with the rocket!

The AI is dumb: your enemies will be drawn to you like moths to a flame, and they sell their lives cheap without even sidestepping your shots. Stand still and you are apt to be slaughtered. Use cover wisely—some environments provide ample cover while others are virtually empty spaces.

For the masochistic: monsters keep kicking your body after you've died—bug or feature?

Fans of the FPS deathmatch genre will find Sauerbraten right up their alley. The game can be played in single-player, multiplayer, and online modes with either human players or bots.

Rating: 6.5/10

Medal of Honor: Allied Assault

http://www.ea.com/moh/airborne/index.jsp

June 6, 1944. Operation Overlord. While the world waited with bated breath, the biggest armada of ships in history descended on the beaches of Normandy to free Europe from the Nazis. Operation Overlord and the subsequent operations would not have been possible without the spies and saboteurs who risked torture and death to infiltrate deep behind enemy lines.



The bloody Schütze has seen you. Shoot!

Now if you're a WWII freak, teenaged or not, you will like this game—because you actually get play an officer. (Stay away from the game if you'd rather be a Rottenführer!) To be precise, you play Lt Mike Powell from the American Office of Strategic Services. Your aim is to infiltrate German military installations and carry out activities like sabotage and intelligence gathering. You would also have to occasionally liaise with other covert officers to advance your objectives.

The game emphasises realism—all the weapons, vehicles, aircraft, and scenery look straight out of WWII. Powered by the *Quake 3* engine, the sceneries are highly detailed and rendered in 3D. Both single-player and multi-player modes are available.

With the tutorial in the beginning, you get to familiarise yourself with your weapons and the controls. Each mission starts off with a briefing; at this point you are outfitted with some weapons. You can also pick up stuff from fallen soldiers. On some missions, you get to wear a German uniform. Missions range from blasting sea-facing guns in North Africa to infiltrating U-boat bases in Norway. Whee!

You get a good dose of history while you're enjoying the game... yes, it's that detailed.

EA Games' *MoH: AA* was released in 2002-2003, and retails at $17.45.

Rating : 8/10

Battle for Wesnoth

http://www.wesnoth.org



The Orcs, The Elves and the Mage

Wesnoth is one game that isn't too demanding on hardware. A long-time favourite with gamers, this is a turn-based strategy game, distinct from real-time strategy games. So you do what you want to do—based on your strategy—and then your opponent does what he wants to, and so on. The best known game in this genre is *Civilization*.

The campaigns here are set in different times and places in the fantasy world of Wesnoth. First, you built an army of races: you choose from among Elves, Orcs, Trolls, Humans, Dwarves—you get the idea. The challenge here is to build your own army such that each unit can be positioned to exercise its strengths. For instance, if you have an Elvish army fighting Orcs who don't have archers, position your archers near the marauding Orcs when it's your turn, and finish them off.

Each unit has a "favourite" terrain. One complicating, challenging feature is the day-night cycle: different units have more power depending on the time of day.

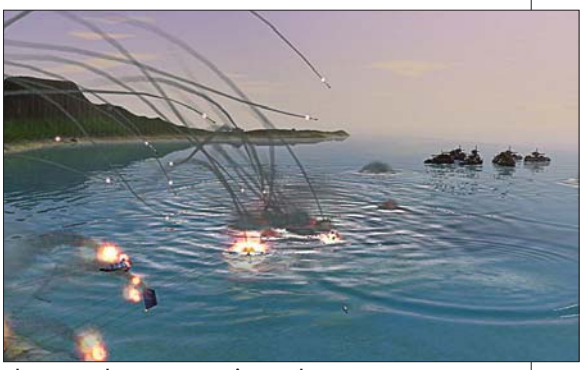
The AI is pretty good overall, and you can set the level of difficulty. Each campaign has its own scenarios and characters; you can also create customised maps and characters. If online, you can access user-generated content, too.

It's a good thing newbies can learn the ropes quickly—there's even a tutorial so you can familiarise yourself with basic commands like moving units around the map. In the end, the game feels like chess; you need to exercise your grey cells more than your aim-and-fire instincts!

Rating: 8.5/10

Spring

http://spring.clan-sy.com



The Armada gets a roaring welcome

Fancy being a commander of a vast robot army? Do you want to rain down death and destruction upon your enemies? (Need we ask this?) Well, here's one chance: *Spring*, a free and open source game based on *Total Annihilation*.

This is an RTS where you command an army of fearsome robots. (May we emphasise the "fearsome"?) It is best played in multiplayer mode, which has lots of options for maps and campaigns, though you have one single-player practice campaign. You start by controlling the Commander, a fighter-worker droid, and construct vehicle plants, bot fab units, energy farms—the works. The resources are—interestingly—metal and energy; you could also build machines to convert energy into metal. You'll need to build fast and furiously, and continuously lay claim to resource-rich areas.

The game AI is robust. For instance, set a fighter plane to bomb a facility and it will, unless attacked from the ground, fly more than one sortie to get the job done! Shoot missiles at planes, and they will arc and swoop until the target is blasted into, you guessed it, smithereens.

The cool thing is, *Spring* does not demand familiarity with the RTS genre. And though they're fearsome, we must admit that if you're good at controlling human characters in RTSes, you can control the bots here.

Rating: 7/10



Lin City - NG

http://lincity-ng.berlios.de



3... 2... 1... Fire!

For aspiring city planners buried under loads of FPS, RPG, and RTS games, *Lin City - NG* comes like a breath of fresh air (or smog, if you want to be brutally realistic). It is a refurbished and slicker open source and free version of the classic city simulation game *Lin City*. Go ahead and unleash the Corbusier in you!

So well, naturally, you start off with a random village or an empty space. The terrain is mostly flat with water bodies thrown in. With an initial corpus, you start constructing communes, residences, roads, schools, industries—the works, literally. As the simulation progresses, your tech levels increase and the city will expand, forcing you to deal with all the problems a modern city planner faces—population pressures, spiralling pollution, infrastructure bottlenecks, creation of employment opportunities... yes, it's that realistic!

On a sad note, if you can't make city liveable, your citizens will die and you'll lose the game (their lung cancer shall be upon your head). But if your city is flourishing, you reach the high-point of technological development, and... now hear this—you're considered just too advanced, and you get the option to evacuate your citizens using rockets! Some warped imagination at work here...

The highpoint of *Lin City - NG* is definitely the graphics. They are mind-blowing, and we won't go into more elaborate adjective use. The UI is a bit confusing initially, though.

On the downside, newbies are likely to be hampered by the lack of a tutorial, and the water bodies don't have depth, as in, rivers look like puddles.

Lin City—NG was the Linux Game Tome game of the month in January 2005.

Rating: 7/10

Flight Gear

http://www.flightgear.org



If you love flight simulators and want something that can be played outside of Windows, and also have played *Microsoft Flight Simulator*—pretty much top dog in this genre—too much (or can't afford it), *Flight Gear* is what will fit the bill. It is a realistic, sophisticated, and highly extensible game that has been in development for about 10 years—and has finally come of age.

Flight Gear is all about options. You could fly the Wright flyer (yes, that stringed contraption from Kitty Hawk) or break the sonic barrier in the cockpit of the Concorde. They even have a UFO (in case you want to know how our green friends manoeuvre those saucers). Could you ask for more? The choices are equally esoteric in terms of locales, and you can take



Jump off from a carrier

off and land from international airports, cramped dirt strips, and—hold your breadth—an aircraft carrier! The environment settings are detailed, and you can choose the time, cloud cover, wind conditions, and more. Whether on the ground or in the air, you have several views to choose from, both inside and outside the aircraft.

You can play *Flight Gear* using either keyboard or joystick. Remember that if you're new to flight simulations, you might be overwhelmed by the plethora of key combinations.—but only initially.

Ground scenery is not as detailed as in *Microsoft Flight Simulator*. This lack of detail works to your advantage, really: you don't have to watch the plane suspended in mid-air as the ground maps continue loading. The sound, comprising ATC traffic and static is as realistic as can be, although it must be said that if you crash, the radio will not let you die in peace.

Another unique feature in this game is sloped runways—try landing on them and see gravity in action. You can fly in formation with other players and download sceneries, runways, and planes from the homepage.

Rating: 6/10

TORCS (The Open Racing Car Simulator)

http://www.torcs.sourceforge.net

A well-known free and open source racing simulator that's been around for years, each and every aspect of TORCS' gameplay can be configured. It's also surprisingly CPU-light.

The default package is limited in terms of tracks and cars—but more resources are available on the Web. To get the most out of TORCS, you'll need to visit sites and download cars, tracks, and scenes. There's a list of related sites at the homepage. The packaged tracks include dirt tracks and roadways. Most of the cars that come with the default installation are, looks-wise, the NASCAR rally type.

There seem to be a few bugs: the number of competitors you select in the beginning might not be how many you end up racing against! Then, the AI-powered cars in front of you often look like they're spitting flames from the exhaust *à la The Fast and the Furious*, though you might call this a feature that makes the cars look cool. In-game graphics like skid marks are pretty realistic, and what is more gratifying is that unlike in most other games, the other cars, too, skid uncontrollably along tight corners.



Straight road ahead—fancy burning some rubber?

This game can be played online: there's a World Endurance Championship where players design their own cars and race them.

Rating: 6.5/10

Rune

http://www.runegames.com

Norse mythology has been one of the most favourite themes in popular fiction. In case you didn't know, several themes in *Lord of the Rings* come from Norse-land. It's been affecting games, too, for a long time; themes from Norse mythology—Valhalla, Odin the King of the Gods, The End of the World, and such—have been a recurring feature of many games, especially in the fantasy RPG genre, both online as well as offline. There has also been the occasional title in the RTS genre—recall *Age of Mythology*. *Rune*, though, is a bit like a square peg in a round hole. It is a first-person hack-and-slash game that combines elements of fantasy RPG and FPS. Released for Windows, it has been ported to Linux by Loki Software.

Rune follows the adventures of Ragnor, a keen young warrior who journeys across the worlds of the un-dead to mountainous regions in order to prevent the evil god Loki from unleashing Ragnarok—the end of the world. Sound interesting enough already? He fight monsters, goblins, dwarves, and other races in his desperate fight to save Midgard, the world of men. Ultimately—and this has something to do with a pond, but we won't reveal more than that—you get the powers of Loki's fearsome monsters. At that crossroads, it's up to



Hackin' and Slashin'

you whether to remain Good or go to the Bad.

There are no long-range weapons in this game, only melee weapons like swords, maces and battle axes. You can throw weapons at enemies from afar, and also throw severed limbs and chopped off heads—whoopee!

In fact, the game is more suited for single-player mode because of the nature of the weapons—it's kind of boring to spar for a long time with a human player unless you're an expert at fencing!

And then there's the usual idea: the more levels you complete, the more skill and strength you acquire, which unlocks more weapons. *Rune* is based on the *Unreal Tournament* engine, enhanced for spiffy graphics like shadow effects and natural outdoor environments.

Rune and its subsequent titles are property of Human Head Studios. Released in 2000, it retails at just $11 (about Rs 500).

Rating : 8/10

Neverwinter Nights

http://nwn.bioware.com



Lady Aribeth de Tylmarande, a central character

An expansive game with an epic storyline, *Neverwinter Nights* has been a long-time favourite of fantasy RPG gamers. It is based on the rules of *Dungeons and Dragons* and the original *NWN MMORPG*, which was the first graphical game in its genre.

As in other such games, you select characters from different races—a Barbarian, a Rogue, a Wizard, a Paladin. The characters can be customised to a large extent: you can assign specific skill sets, for example. The main aims in *NWN* are (a) to find a cure for a plague that's decimating the population of Neverwinter City by collecting "reagents" from different sources, and also (b) to defend the city

The gameplay is not linear: you have a choice in many scenarios, and your choice determines the outcome of many side-plots. An interesting number of twists and turns will keep you entertained throughout the game—a thoroughly addictive experience, we'd say.

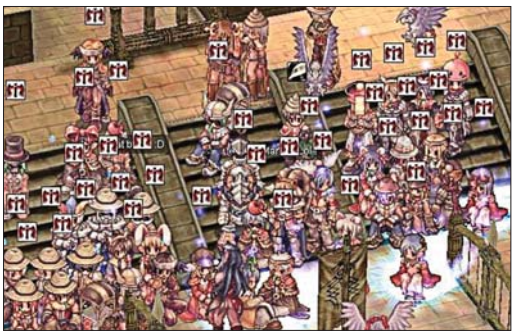
The Windows version of the game ships with the Aurora tool kit, which enables custom content creation in both single-player and multiplayer modes. Another feature that sets this game apart from other RPG games is that as your levels advance, you get to become a jack-of-all-trades instead of becoming a specialist. In a world where you have to fight diverse enemies, this is pretty cool; in fact, it's a lifesaver.

NWN was released by Bioware in 2002 to 2003 across different platforms, and retails at $14.99 (Rs 625). The Linux client is available for free at the homepage.

Rating: 8/10

Ragnarok

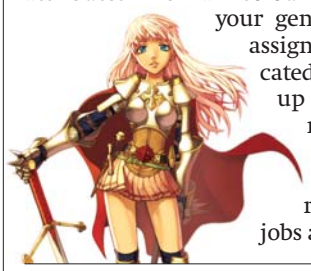
http://iro.ragnarokonline.com


A meeting in progress: notice the anime-themed characters

Ragnarok is a fantasy MMORPG mainly based on Norse mythology (we told you game developers love Vikings), where you inhabit a vast fantasy world, fight battles, marry, trade, and go on with the business of life. But mainly fight.

First things first: to play *Ragnarok*, you need a decent Internet connection—by that we mean at least a sustained 256 Kbps. Otherwise you'll be pretty much staring at your screen most of the time. You also need to pay to play—depending on the payment scheme, it works out to about $10 (Rs 400) per month.

Registration and all completed, there is a choice of four servers—you can connect to any one and start playing. Choose your character's attributes like hair colour and length, though your gender is automatically assigned (because you indicated it when you signed up at the site). As a novice, you select your job and steadily advance up the ranks. Examples of jobs are swordsman, thief, merchant, and magician. Combat styles, quests and any in-game behaviour depend upon the job selected for yourself. If you connect to a different server, you'll have to go through the entire process all over. Players advance their character levels based on their quests and/or credit points, which they can also buy. These points let you acquire stronger weapons. There are player vs. player encounters, and also guild battles—depending on time of week and the server. The graphics are Japanese anime-style, which really does not mesh in with the Norse backdrop of the storyline. Sad—but they probably have a reason.



For a newbie, *Ragnarok*, or any other MMORPG for that matter, takes a lot of time to master. There are too many quirks and idiosyncrasies—due in large part to the fact that you're interacting with other humans here, not bots.

Rating: 7/10

The Final Conflict

After many months of riding the hype machine, the last instalment of the immensely-popular *Halo* trilogy has finally hit the markets, and Microsoft's ensured that every Xbox-toting gamer has been sweating in anticipation. I don't usually have much hope after so much hype, but surprisingly enough, *Halo 3* lives up to a generous portion of it.



Rating	:	**9/10**
Developer	:	**Bungie**
Publisher	:	**Microsoft**
Distributor	:	**Redington**
Platform	:	Xbox 360
Contact	:	**xbox360@redington.co.in**
Price	:	**Rs 1,895**

The Script

The *Halo* games have a book's (two, even) worth of background pseudo-mythology behind them; for now, you must satisfy yourself with a condensed version. Humanity is at war with a fanatically religious race of aliens (go figure) called the Covenant, led by the Prophet of Truth. Humans are scum, and must be eradicated from the universe. Once that deed is done, they'll be taking their stairway to heaven by activating the Halo rings spread out around the universe. What they don't know (or choose to ignore) is that their path to salvation is really a highly destructive force that can wipe out all sentient life from the universe. It's all social commentary on what's been happening in the world today—stupid, malicious things being done in the name of religion and all that. At the beginning of the game, you're reminded that the Covenant has located the Ark—a device that can remotely activate the Halos—on Earth (the reference to the Biblical Ark of the Covenant doesn't seem coincidental), so things might get a little uncomfortable rather swiftly.

You, as Master Chief Petty Officer John SPARTAN-117, will have none of this nonsense. You're back on Earth after your adventures from the previous game, ready to kick the Covenant's followers in hurtful places.

The Battle

Halo 3's controls aren't too complex, so the game doesn't offer you much training before it throws you into the action. Action, mind you, that starts early into the game, and literally doesn't stop—sure, you'll get time to breathe a little every once in a while, but your heart rate doesn't drop to normal till you rip yourself away from your console. You're constantly beset by Covenant forces in large numbers, so skirmishes are long and intense.

Most of the time, you'll be battling Brutes—the more elaborate his armour, the higher he is ranked, and thus more dangerous. The way they tend to charge at you is very worrying—especially in the beginning—and if they get too close, can kill you with considerable, well, brutality. Their edge wears off as you get used to dealing with them, but they're always fun to fight. Soon, you'll be pitting yourself against the Covenant's vehicles, including the jaw-droppingly massive Scarab Tank.

There are many ways to approach the same situation, so you don't get that I'm-hitting-my-head-against-a-brick-wall feeling every time you die (which tends to happen a lot at some points) and spawn to try again. You're also only allowed only two weapons at a time, so your choice also affects the approach you take in battle. And speaking of weapons...

You're not fighting alone for a large part of the game—your fellow soldiers are not only too happy to help you dispose of enemies, but you can also ask them for their weapons if you get bored with yours.

Finally, there are the vehicles—the faithful Warthog returns, as do many of the old favourites, and you now get to take command of the quad-bike-like Mongoose. You can also take command of enemy vehicles, including the Brute Chopper—a rather ungainly motorcycle with a razor-like front wheel and powerful cannon. You can also sit in the back of a vehicle if you'd rather shoot than drive, but your fellow soldiers are the worst bunch of Sunday drivers I've ever seen.

The Verdict

The thing that hits you about *Halo 3* is the scale—nearly every scenario finds you in a super-massive environment. The visuals are as stunning as we've come to expect from Xbox 360 games, with a few subtle niceties like the real-time reflections on Master Chief's visor and self-shadows on objects.

I've voiced my dislike for the console-FPS combination before, but surprisingly, *Halo 3* felt just right. I only had trouble with the flying drones, but luckily I had comrades to dispose of them while I hid in a corner. There are



The Tools

Most of *Halo 3*'s weapons are standard FPS fare—assault rifles (making a comeback from the first game), sub-machine guns, shotguns, sniper rifles, and their Covenant counterparts. Also like in other FPSes, you can man turrets to deal with more enemies, or just more pesky ones. Even better—and this is my favourite part—you can rip the guns off the turrets and lug them around, wreaking general havoc. You don't go as fast, but when you're mowing down battalions of Brutes and laughing evilly, who cares?

elements of the game that reminded me of *Half-life 2*: the Breen-like appearances of holograms of the Prophet of Truth, the fact that you're leading lesser humans into battle against the aliens that threaten humanity and that every time there's a huge boss coming up, you'll find the heavy-duty weaponry required easily accessible.

But that doesn't really matter—what truly matters in a game is how much fun it is. Halo 3 is fun—every controller-gripping, nature's-call-holding, meal-skipping hour of it.

nimish_chandiramani@thinkdigit.com



Idealism, Utopia? Naw... not here...

Rapture... An underwater city. Created by idealists... populated by a hand-picked group of artists, scientists and industrialists, once teeming with life... ideal no more. As a chance interloper you'll find yourself exploring its corridors, unravelling its secrets, all the while defending yourself from the remnants of its now-violent, genetically-mutated denizens. You *will* lose your humanity bit by bit, as you are forced to adapt... to mutate... in order to survive, while the sea struggles to reclaim what was taken from it.

With *System Shock* as a spiritual predecessor and new-age cutting edge visual and aural tools at its disposal, *BioShock* was never for the faint-hearted. After your plane crash, you'll swim to a beacon from a lighthouse that seems to serve no apparent purpose in the middle of an ocean, descending via a rusty bathysphere to Rapture. Once there you'll navigate around—guided by a mysterious voice, a man who seems to have his own reasons for keeping you around... for the time being at least.

Rapture, the creation of maniacal businessman Andrew Ryan, is a city of the future... completely capitalist and free from government interference and religious limitations. In its bloom it might well have been idealistic, but something goes horribly, irreversibly wrong. The city's in disrepair as genetic mutants called Splicers roam around attacking on sight, or on sound. The fight is now for a powerful and corrupting substance called *ADAM*. This substance is what makes genetic mutation possible, what the fight is all about. It gives men god-like powers—like the ability to shoot out lightning bolts and fireballs from your fingertips, create cyclones or even move objects by sheer force of will (read telekinesis). Such powers are available by injecting tonics called plasmids. You can come across these plasmids or purchase them from vending machines, ADAM being the currency. There's another genetic substance called EVE, which is the charge required to use your powers, and you'll have a bar displaying the current reserve of EVE in your body. An EVE top-up is an injection away. You'll also get the old-fashioned firearms and melee wrench which you can find lying around, or purchase from vending machines with cold cash.

Rating : 9/10
Developer : 2K Boston
Publisher : 2K Games

BIOSHOCK

Distributor : eXpressInteractive
Contact: info@expressgames.in
Price : Rs 1299/-

And this is what makes BioShock's combat unique: weapons used in conjunction with ADAM + EVE make for some pretty memorable fights. Imagine freezing an enemy solid and whacking him with your wrench till he breaks into a thousand icy shards. Or imagine what you could do with your fireballs when you chance upon a group of opponents caught flat footed on an oil slick... Alternatively you could send out a swarm of vicious insects to sting antagonists and while they're busy swatting and shrieking pop 'em one in the head...

Enemy variety is lacking, and for the most you'll be battling varieties of Splicers—Leadheads, Spider Splicers, Houdini Splicers and so on. You will come across small mutated girls called "Little Sisters" who harvest ADAM from dead bodies and store it within their bodies. You'll face a moral dilemma—rip them open for a sizeable amount of precious ADAM, or exorcise them to restore them to their human selves, thereby saving them for half the ADAM. Before you decide, however, you will face their guardians—"Big Daddies." These huge, hulking guardians seem like proverbial tortoises that couldn't dodge a wheelchair, but attack them and they'll come at you with the speed and impact of a bullet train. Kill them, however, and you'll have Little Sister and all her ADAM at your disposal.

You'll follow the regular mission-style theme throughout levels, all the while indulging in ADAM, sometimes performing tasks for more than one master as you continuously refer to audio logs to discover for yourself what exactly went wrong.

Visually, BioShock is splendid enough to keep all but the extremely myopic hooked. The water effects make *Half Life 2* look like a woody cartoon... Fire and explosions look very real, as does the (sometimes) flickering lighting; this adds to the grim ambience the game intentionally sets. And its not just the pixel shading goodness you'll notice: this game has a darn good aural experience in store as well. You'll hear enemies moving around at times, but won't be able to pinpoint their exact location—only the general vicinity they populate. This is intentional, and keeps you always on guard, on edge. Play it after dark with the lights off, and you'll jump at indistinguishable sounds, while the more mundane ones add to the immersive realism that'll spoil you silly.

BioShock is a unique game that mixes the 1960s with sci-fi themes of bio-genetic mutation and self-modification. Throw in a deep storyline with the freedom to interact with the world as you choose, and unique first-person action that mixes mundane weapons with not so mundane super powers, and you have a recipe for a real thriller. Add a dash of stunning visual graphics and a realistic audio component and you've got a winner. This one is a dish best served hot. It's not sans flaws though—enemy AI, unrealistic weapon damage models, and the fact that its too darn easy. Of course it requires a behemoth of a PC to run as well: 2K Games wasn't kidding when they ideally recommended a GeForce 8800GTX / Radeon HD2900XT card.

Even if you aren't the idealism swilling, dystopian kind of Ayn Rand fan, you should give BioShock a try... It's sure to zap your senses.

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The dance of death!


Hey... I'm no Tyson... get outta my face...


Time to drill you a new one...


Lookit all that ADAM...mmmm


Ouch!


Rapture is sprawling—and you get to poke around...

Cofi-Fi
Seats at Starbuck's are prime property—you get up for a refill and someone steals your seat. Not any more, thanks to the store's Wi-Fi. Now customers can just navigate to the store log-in page and click on the coffee option which will appear at your elbow minutes later.



Location 39º54.333'
Here's a £140 (Rs 11,200) toothbrush from Oral B. Why so much? It has an inbuilt GPS transmitter, pressure sensors, brush settings, LCD screen and timer—all geared to make your brushing experience as scientific as possible. Now if we could get ourselves to stop eating junk...



Escape

SENIOR CRAZE

Wii Want More

Cranky parents have ever been grumbling about how addiction to video games, the telly and the Internet are spoiling their kids. The video games are the favourite whipping boy, blamed for almost everything from obesity in teenagers to the killing of women and children upon whim. That monstosity of a pastime has now spread its tentacles to a retirement home for seniors.

Residents of Sunrise Homes in Birmingham were used to enjoying the evenings of their lives in the apt manner: playing chess, bridge, knitting, solving crossword puzzles, and stroking tender, furry creatures. This was before the Wii invaded the peace. And, as the phrase goes, they haven't looked back.

Once those seniors got their mitts on the console, they dumped all the knitting and crosswording, and even forgetfully dropped the puppy-dogs they were stroking—and started gaming with a vengeance. Yes. the old boys and girls were determined to catch up with all the games they'd missed out on as kids (or as youths, or as householders, or as middle-agers).

The sad thing began when a chef at the Home showed his Wii to some of the more impressionable seniors, who spread the word: "Hey, we've been had. Our sons and daughters told us to knit and do the crosswords. *Here's* where it's at!" Soon each and every resident—including the wheelchair-bound, and including those over 170 and lacking in limb—joined the fray as if their lives and dentures were on the line.

Those old-homers in Birmingham have honed their skills and revived their faculties to an extent that allows them to band into leagues and play against each other on the Wiis.

A significant percentage of the general population is in this age group—65+, say, if not 170. How soon before game publishers wise up and start rolling out games made for that generation? Suggested title morphs:

Ace Dentura
Full-Life 3
The Legend of Hilda
Almost-Dead Head Fred

Or the developers could be altogether original:

Mealtime Denture Rush
Sexagenarian Appeal

Only remember, they talk a lot, presumably even while gaming, so don't bother too much with the sound effects.

UNITED IN HATE

Chat Angst

Sweetie and Prince of Joy met in a chat room online and, as happens

Win! My Desktop

Aksash Bhatnagar, 51 SFS DDA Flats, Gautam Apartments, Gautam Nagar, New Delhi-110049

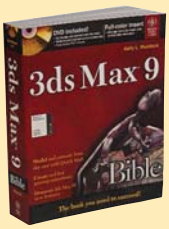
How he did it:
In order to create it I have used Real Desktop along with icon package from Vista transformation pack and TuneupUtilities. The wallpapers used are from various sites on the net.



Send us your desktop with a description of how you made it to **mydesktop@thinkdigit.com** with the subject **"My Desktop",** and tell us your postal address, too.

Participate in this contest and win next month

3ds Max 9
by Kelly L. Murdock
Published by
WILEY-INDIA



Whatever Happened To...

Sonique Media Player

Ages ago—in computer time—developers at a company called Media Science—later taken over by Lycos—saw the sad faces of Windows audio players like WMP and Winamp, and decided to liven up the scene. Thus arose Sonique Media Player, with a fluid, windowless interface. Fully-animated menus, unique and customisable output visualisations, controls for pitch and amplification, a 20-band equaliser with "spline-based level adjustment" and saw Sonique go ahead of Winamp in terms of popularity.

When Lycos was bought over in 2000, an alpha version of Sonique 2.0 was being developed. At this point Lycos lost interest, and the version was never completed. In September 2005, Lycos killed off **www.sonique.com.** Though you'll find alpha and beta versions, both are unstable.

Even to this day, fans believe that Windows Media Player and Winamp do not match up to Sonique's aesthetics and controls. But since there have been no updates in a long time, newer codecs such as AAC aren't supported.

A nostalgic few still use Sonique, but as though showcasing the fact that the player has passed on to the great blue bit-cloud in the sky, **sonique.lycos.com** isn't a download centre for the player. The page rides on a ghost of a name.

■ "Unix" and "Linux" are now banned as keywords on XBox Live. Go figure ■ Belgium was up for sale on eBay. The auction was removed, but it capped at $10,000

DigiPick of the month

Portable and affordable



Last month's winner:

V Balaji Sarvanan
Chennai

Participate and win next month:



Pro WPF
Windows Presentation Foundation in.NET 3.0

by Mathew MacDonald

Published by WILEY-INDIA

WIN!

Send in your entry and you could win an exciting gift by sharing an amusing picture with a tech angle to it. The picture should have been shot by you, and should not have been published anywhere earlier. E-mail your picture with **"DigiPick"** in the subject line, mentioning your postal address, **on or before the 20th of this month** to **digipick@thinkdigit.com.** One prize-winning picture will be published each month.

in happy cases, were instantly drawn to each other. Both happened to have been stuck in marriages that were on the rocks—no sex, no cooking for each other, no catering to each other's fantasies by wearing lacy bras—you get the idea. It's a heart-warming story: the two found each other funny, warm and sympathetic—qualities they could no longer spot in their spouses even after detailed gene mapping.

After quite some time chatting, S and P decided to take that orgasmic final online step—meet up in real life, braving the snipers and land-mines. (They both lived in Zenica, Bosnia.)

All good things, though, must come to an end. The rendezvous went according to plan, but things went downhill from here. Actually, "downhill" is the wrong word: things turned ugly. Why? Was Sweetie ugly? Was the self-proclaimed Prince no visual Joy? Well, it turned out they knew each other more than casually; they knew when the lacy bras had last been worn. They were husband and wife.

Since the online wannabe offlines had bonded based on mutual spouse-antipathy, what was supposed to have been a romantic date became traumatic hate: a shouting contest on the street. Even the sniper rifles couldn't be heard over them.

Our far-flung reporters tell us that last they heard, the couple had done the square thing and gone to the divorce courts.

On a rational level: if they'd seen personal qualities online they hadn't seen before, they could have kissed and made up (or out) right on the street, land-mines willing. But no-one with names like Sweetie (and Jack of Spades or whatever) can be expected to be rational... yes?

NAME GAME

Russian Roulette

A lot of things changed in 1991. Most notably, the unfortunately long experiment that was the Soviet Union was finally put to rest. Godless communists suddenly ditched sickles for candles and vodka for wine. And die-hard comrades, the kind who would yell on the phone, "Petrova! P for Party!... No! R for Red!"—well, such-like folks the world over were heartbroken. They've been feeling lost ever since.

But, though the Internet is Godless, it's also the great uniter. And guess what: the Soviet Union is alive and kicking in cyberspace.

In the early days of the Internet and the last nights of the USSR, the ICANN—the US-based international body which looks after the giving of names to things on the WWW—assigned ".su" to the once-country. (Ha-ha! Bet you didn't know!) Fifteen months later, the Soviet Union was no longer on the map, but to this day, .su domains sit cheek by jowl with .ru crack sites. Yes! Check out www.internet.su! It works! (That it only says "test" in text is another matter.) And—mwahaha-hahahaha! There *is* a lenin.su! We just knew it! It

People Who Changed Computing

"The Computer Man"?

What did Alan Kay not do? He is best known for being one of the earliest architects of object-oriented programming (he coined the term) and for his contributions to the GUI. And also for "The best way to predict the future is to invent it"—yes, you've heard that; it was Kay who said it. Squeak.org says he *developed the idea of personal computing*; gatech.edu says he's considered by many to be *the most influential computer scientist of the modern era.*


Alan Kay

The man is overshadowed by his achievements; he seems to have done little but work, eminently productive work—but he also used to played jazz guitar, pro! Interesting how computers should lead a man away from guitaring...

Kay did almost too many things: part of the original team that developed continuous-tone 3D graphics. Co-designed the FLEX Machine, an early Desktop computer with a GUI and Object-Oriented OS. Participated in the design of the ARPANET. Conceived the Dynabook, a laptop for children; it is behind the basics of the laptop and tablet PC. Invented Smalltalk, the first completely object-oriented programming, authoring and operating system, which had the familiar window interface. Worked in screen painting and animation, *and* desktop publishing, *and* the development of the first modern networked PC.

Kay has been a Xerox Fellow, Chief Scientist of Atari, Apple Fellow, HP Senior Fellow... the list goes on! Well beyond a Person Who *Changed* Computing, he invented a lot of it...

■ A Pegueot concept car has an XBox on the dashboard. Multi-tasking at its best—and most dangerous! ■ A player sold his World of Warcraft avatar for $10,000

Bluff YOUR WAY THROUGH

Counter-Strike

Counter Strike (CS) started off as a mod for *Half-Life* in 1999. Close to a decade later, it is still one of the most-played games on and off the Internet, although it's a pretty repetitive game. Now you'll see people on LANs using terms and abbreviations like...

Steam: The network that is used to distribute, authenticate, and keep track of games and game servers.

Maps: *Counter-Strike* maps usually start with the tags de_, cs_, and as_. de_ denotes bomb-defusing maps, cs_ are hostage-rescuing maps, and as_ are assassinations maps. Some of the famous maps in CS are de_dust, de_aztec, and de_inferno... called dust, tec and ferno by regulars.

Headshot: Headshot or HS's as they are called are single-shot kills (by shooting in the head)

Lag!: Used to describe game delay and disruption in multiplayer gameplay due to faulty or slow network connections.

Terrorists and Counter-Terrorists: The two teams in Counter-Strike, known as T's and CT's. Every map has a fixed spawn area for each team.

Owned — Owned or OWN3D or owned or PWNED are used to describe complete domination over the opponent in Counter-Strike and pretty much every other game.

Usage: Hey!! *Steam* isn't connecting?? Is it down?... I so badly want to play *as d2*. I hope I don't *lag* like last night. I'm going to join *T's*, it's more fun in *d2*. I intend on getting some really good *HS's* on the *CT's*. I hope they're prepared to get *PWNED*!

Wild Wild Web

Anti-Anti

There exist good people in the world. Some of these good people have, out of concern for the Internet community, joined the fight against all bytes evil—think phishing, malware and all. They set up sites for "anti" downloads. They give out newsletters on how to safeguard yourself against upcoming threats—in short, they give you the armour. In dishing out Goodware, they've attracted attention from the bad sort—the sort that actually spreads the aforementioned evil bytes.

So the Bad are now focusing attention on those sites: "So *here's* where those dumbhead users get wise." And they've taken to the stinkingest tactics possible—targeting the sites with distributed denial-of-service attacks and such. The securers of security are scrambling to get back online, and they're bold in their reaffirmations.

Visit CastleCops.com, for one. It's War!

E-commerce: The Cutting Edge

Unhappily-married folks of the type who engage in *{ahem}* extra-curricular activities will no longer have to stammer (or shout back, if aggressive) when the suspicious spouse asks where he or she was Friday evening. Help is at hand for these harassed souls in the shape of Ibila.com, which is in the well-thought-out business of cooking up alibis to cover suspicious absences. A simple enough modus operandi: they'll call frantically from your workplace, send you invites to seminars... you can figure. And if the spouse is still sceptical about that convention, you also get handouts like pens and notebooks. Brilliant. No comment, except for this old one: What the Web hath Wrought!

starts off with unprintable characters, but Google helpfully translates them to "Thanks to the development of the world computer industry..."

Now the crazy whatnots at ICANN, apparently influenced by capitalists, are set to snuff out this last bastion of Godlessness. They are out to wipe .su off the Internet map. Why?

The reason being given is that of keeping up with the times, though the people behind the (thousands of, we hear) .su sites say it reminds them of the days when Sputnik orbited the earth and when wars were fought with ice, not shock or awe.

They also point out that decadent imperialists are following double standards by using the semi-formal .uk domain instead of .gb (ha-ha! Bet you didn't know!). The world at large has been assured that there are no fears of a Cold War breaking out on the Internet, but we have our doubts: nostalgia is one thing, but never, we say, understimate the power of a country that sent Man and Woman and Dog into space while Americans were waxing fat on burgers and Budweiser.

PURR TALK

What's In A Meow?

Picture this—you have a cat (though God only knows why you have one of those instead of a Best Friend of Man), and the vaguely snake-like creature is all over you, purring and meowing and rubbing herself against your legs when you unlock your door. Or maybe you heard a snarl-like eruption from the pussycat you're so lovingly fondling.

For baffled owners who wonder what those purrs and growls mean, help is at hand. All it takes is a transfer of $75 to Takara Tomy for the Meowlingual. And oh, you *will* need to take Japanese classes. (But Japanese is a whole lot easier to learn than Cat.)

The Meowlingual is a brightly-coloured plastic device that looks like a slim tiffin box, and it has a dial. No complex configuration—just switch it on and place it next to the tabby that's doing God knows what kind of body movement and making silly, incoherent sounds. Wait for a moment, and the Meowlingual will play an audio clip in Japanese. Now, if you *did* learn Japanese, you'd catch something like "Stop petting me so much, moron," or, more likely, "Kill Fido or I'll run away—and I *know* you love me, even if I don't reciprocate." And you and your cat would live happily ever after. Or, perhaps, part ways—hopefully not in the distasteful (a pun here!) manner of she being sold to the seedy-Chinese-restaurant owner.

Now, not to degrade or disrespect women, we'd love to know what they,



■ A soldier sold some Queen's Guards' bearskin hats—those tall, black ones—on eBay ■ Details of a secret Russian submarine were up on municipal Web site

in their roles as girlfriends and wives, say. Will a "Femlingual" arrive any time soon? We could just put it to the mouth of the subject. The device would say No when the Woman said Yes, and all the rest... you know. All those forwards are bloody true, if you ask us.

Actually, if you ask us, forget about *both* cats and women. Get yourself a faithful dog. At least you know what they mean.

PFIZER GENUINE ADVANTAGE

Spambots

Quacks peddling anti-erectile- dysfunction drugs are the most common spammers, and even if you do wish for some body parts to be larger than those of others, you just hit the Delete button. But what do you do when you get a mail about Viagra from Pfizer Inc.? (*Pfizer* makes Viagra, not Axis Herbs And Supplements, as the spammers would have you believe.) Well, you open the mail and scratch your head when you read about bargain Rolexes. You would possibly see details about penis enlargement products, and pitches for Valium, and also about Cialis, a Viagra competitor.

The MBA whizkid would, at this confounded point, trawl the business papers looking for Pfizer's latest business policies. Regular folks would wonder a little, then shrug their shoulders. But as a technology magazine that's keen on what's going on on the Net, we want to know: has Pfizer gone to the bad? Etc.

Turns out Pfizer hasn't diversified, nor is it keen on uplifting competitors. Its computers have been infected by malware, and those now-misguided computers are spewing spam. Pfizer and its stakeholders are piqued.

Even after repeated warnings from security agencies, Pfizer continues to be oblivious to the problem—they have a poor security record anyway. Somebody at the company once installed P2P software and inadvertently exposed the *personal* information of 17,000 employees. ("Jack uses Viagra! Paul's ditched Viagra for the pump!") Embarrassing then, embarrassing now—or has Pfizer really gone to the bad? As in, "Buy the *real* thing—don't go with what the *spammers* offer!"?

When Geeks Get Horney

DIGIT DIARY

Digit is the land of geeks, and our staff is not made up of just *any* breed of geek. We're arrogant, self-righteous and very, very narcissistic. As expected, there are arguments galore, on a daily basis.

Ed just uses his position to win his share of fights; Sanket does the same in the Test Centre. Michael usually uses his upper-body strength, which he spends two hours a day enhancing in our office gym. Robert (Raaabo) uses a mixture of his position, physical strength and rather large vocabulary of abuses to out-yell his opponents. The peaceful Ram has perfected the art of disappearing when there's conflict—very efficient this; you can't argue with someone you can't find.

Nimish, sadly, has everything going against him. He's not senior enough; not old enough; not strong enough to throw his own considerable weight around... you get the picture. On a recent official trip to Singapore, he found his weapon of choice. Then during a meeting in a rather confined space, with everyone trying to out-shout the other, Nimish revealed his weapon to us:

"BHWAAAAAAAAH"

Imagine that sound made at around 160 decibels; Nimish had bought himself a rather loud air-horn in Singapore. After we all put our skins back on, and the church bells in our heads stopped ringing, we quietly listened to his point of view, secretly vowing to kill him. He's laughing his head off for now, but we're patiently waiting for that little can of compressed air to run out—we'll see who has the last laugh.

Blog WATCH

The blogosphere certainly can't seem to stop talking about Apple's (mis?) adventures, but it's been quite an adventure for Apple: the iPhone (yes, we're sick of it too) was talked about much more than a pressing US national issue

Bluetooth support in iPod Touch?
-Nelson is one among many with iComplaints
http://tinyurl.com/33em8c
This is pretty cool... You shell out $400 (Rs 17,170) for a brand new iPod Touch; you get it home and crack it open only to find out that Apple forgot to load the OS on the thing. I'm thinking that I would be pissed, and that's just what happened to a guy.

But something interesting popped up during the whole thing, the unit displays the icons that are activated and not activated. Cheerio for the serial number, very clever Apple. But the one that is the most interesting is the Bluetooth icon that is not active. This proves that they shipped the iPod with Bluetooth capability, and perhaps it can be activated with a firmware upgrade. I'm sure there's a hacker or two out there that's more than up to the task.

The people formerly known as informed
-Nick Carr: What's important, iPhone or iMmigration?
http://tinyurl.com/2byhs3
So what happens when "the people formally known as the audience," as the citizen journalism hypesters like to say, take charge of the dissemination of news? (Researchers) examined the top stories appearing in the crowd-edited news sites Digg, Reddit, and Del.icio.us during a week in June and compared them to the top stories covered by the mainstream media. They found that the stories in the user-driven sites were "more diverse" but also "more fragmented and transitory."

The immigration debate led the coverage in the mainstream media, accounting for 10% of all news stories. It appeared just once as a top-ten story on Reddit, and not at all on Digg and Del.icio.us.

What were the favorite stories on the user-driven sites? The only story with any real traction was the release of the Apple iPhone; it accounted for 16% of the stories on Digg that week.

Hey I got the new iPod Nano but...
-Douglas Kastle's Pos-syncing woes
http://tinyurl.com/37ou9l
I hate iTunes, I've run it on I don't know how many machines and I find it clunky, buggy. I especially don't like the way it doesn't dynamically track a folder that has been added to a library... Winamp is a lot better and I've been using it for my iPod video for a while. When I plugged in the new Nano, Winamp recognised the Nano alright, and I copied over playlists, but when I ejected the Nano and tried to browse the music, nothing happened. Then I find the Net alive this morning with the Linux community finding the same problem, "iPods reengineered to block synching with Linux", I'm guessing this is the same problem I'm seeing in Winamp.

■ The Chief of the United States Copyright Office doesn't own a computer! ■ The computer smiley celebrated its 25th birthday last month :-)





September 2007

Fast Track To Money?

Congratulations on your September issue—your team has yet again done great work. Hats off! I feel proud to be a *Digit* subscriber. It's great to use Thunderbird to download my Gmail and read then offline—I even save a few rupees this way—and this has happened only because of your *Fast Track*. Now for my suggestions...

Do mention system requirements for the games and software you include on your CD and DVD.

The software archive you provide should be printable.

With *Tech Careers*, please provide names and addresses of some of the institutions that provide relevant courses.

Kapil Pawaskar

Hi Kapil,
I'll address your suggestions: you're right about mentioning system requirements for games, and about the software archive being printable. It's something that needs to be arranged for, it requires a lot of work, and we might do it soon. As for the institutions we mention in *Tech Careers*—they all have a Web presence, so you can always find their addresses online.

— Executive Editor

The Digit Spec-sheet: Feature-rich!

This month—October—is the fourth anniversary of my having bought *Digit* for the fist time. And though I couldn't afford to be a subscriber, I used to be at the magazine stall very often waiting for the issue. I also buy other computer-related magazines, and I've come to realise that though all the others have their ups in some way, *Digit* has always been a leader in IT magazines: it has a cute CD/DVD cover-box, an awesome *Fast Track*, marvellous software on the discs, and a wonderful magazine. My humble advice is: do not drop any of these features!

Seiboi Haikop
Imphal, Manipur

Please Dunk The Ads!

I'd like to thank myself for becoming an avid *Digit* reader from June 2006. OK, well, the credit goes to you people! I'm doing a B.Tech. in IT and your (sorry, Our!) magazine has been of immense help.

I really like the articles by Ram Mohan Rao and Nimish Chandiramani in the *Digit*al Passion. This time *Sci-Fa*, *Almost Intelligent*, *Alterface*, and Touchscreens were really, really nice.

Although I have *Digit* as a subscribed magazine in my college, I prefer to buy a separate one for myself. Besides this, the language of the magazine is such that it's so much fun to read it. It improves my reading skills as well. I suggest *Digit* as the best tech magazine if anyone were to ask me!

I can easily repair my friends' computers—by taking notes of your Q&A section, and my hardware knowledge. My friends consult me prior to making any computer purchase decisions, and I in turn refer to your magazine. Now for some suggestions:

Please include the latest, updated versions of the software you provide on your discs. This time, you provided Opera 9.2, but 9.3 was out already.

Do reduce the advertisements. They are too much!

A *Fast Track* to Web designing and programming is still awaited.

Please try to give out a *Fast Track* on Linux. There's been one, but we want something more up-to-date.

Try to include more sections on robotics and Artificial Intelligence.

Do include a regular section that covers the detailed internals of various technologies.

I know it is next to impossible for this mail to make its way to be published, but please make a note of these suggestions!

Mrinal Purohit
Jodhpur, Rajasthan

Hi Mrinal,
I'm very glad to hear that you think we're the best... we believe that ourselves, but I'm always gladdened when I see that reinforced by a reader!

Now for your suggestions. First off, it's ads that keep the price of a magazine where it is—I'd sincerely suggest you ask someone in the advertising industry or someone working with a newspaper about this. As for the latest versions of software, well, if the magazine is to reach you on time, we must create our discs well before that date—and if something gets updated in the interim, we provide it on the next month's discs.

Robotics and AI are specialised topics, and we do cover them once in a while—our choice of articles is such that as many readers as possible are kept happy. But about the internals of technologies, yes, that's something I'll certainly consider.

— Executive Editor

Hidden Gems

I was astonished when I made some system changes you mentioned in one of your issues. From last night, I have been studying past issues of *Digit*! In the March issue, you showed us how to launch Nero faster. My Nero StartSmart opened in 7 seconds—it would take 30 before!

We'll hope for a *Fast Track* that gives an idea about running the OS and its applications faster with such "not-so-known" facts.

Gaurang Ajwalia

I Like, I Want

I have been reading your magazine for the past few months. I switched to it after trying several other magazines because it is different. I need not say which differences—everyone makes a singsong of it in this section, so I need not repeat them. Still (!), I have a few suggestions to make:

Why don't you select a theme for each issue? This way you'd be able to provide finer details of the selected topic.

In each of the articles published, writers always give their views to us. What I'd suggest is that you should print your opinion at the end. Give your readers a chance to develop their own points of view.

In game reviews, *Digit*'s game PC configuration is printed. Why would we need *your* PC configuration? Instead, print the recommended system requirements of the game, so we can decide whether to buy the game or not.

Please don't make your DVDs bootable. Your DVDs are very popular in my friends' circle, the result being that my DVD is in a mercilessly scratched state by the end of the month. Since dual-layer DVDs are still Rs 100+ here, I can't make backups.

Give trial keys on your DVD interface.

Write to the Editor

E-mail: editor@thinkdigit.com

Snail Mail: The Editor, Digit, D-222/2, Om Sagar Building
MIDC, TTC Industrial Estate, Nerul
Navi Mumbai 400 706

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Inbox

It's a hassle to go to a cyber café!

Don't you people like hard rock, death metal, etc.? If yes, why is there no such music on the DVDs so far??

You can include PDF books on the DVD each month—for IT, programming, hardware, or literature. This is a computer technology magazine, no?

The number of pages is constantly decreasing. Every time an anniversary issue is published, the next month's issue's pages are decreased.

P.S.: Why are these guys making such an issue of the July cover? I've never heard anyone saying anything about the pictures in *Tabloid Tech*. (Chuckle, chuckle... after all, those photos are inside, and dad won't see them!)

Vijay Malkoti

You've written a long letter, Vijay—thanks for the effort! But then, space doesn't permit a discussion of all your suggestions. Anyway, here goes.

We did try themed issues, and they weren't much of a success over regular issues. Second, we will in all probability start publishing recommended system configurations for the games we review. But still, we mention our configuration so readers can gauge what kind of experience they will have. Also, a game review is hardly complete without system specs, because the results vary wildly across configurations.

About your DVD getting scratched—I can only say two things: try and keep the disc scratch-free using a soft cloth and by handling it properly, and ask more of your friends to get themselves copies of *Digit*!

I personally don't like death metal, but as far as my readers are concerned, we're a technology magazine... then, about PDFs: most good ones on IT and programming and such are *not* free, so we can't put them on our discs. Trial keys for software are not possible because you're legally bound to register at the respective site for each license key. Finally, as for the number of pages decreasing, we once made a decision to reduce the number of pages so as to keep the price constant—the page count has not reduced since.

We might make the Tabloid Tech page perforated at the side so you can tear it out—and that'll serve two purposes! Just kidding... But I genuinely hope we'll continue to be different, to satisfy the needs of our readers.

– Executive Editor

The Cover Issue

After checking the July cover once again I'm writing to you. But this is actually in reference to Prasanna's reply to my August letter. He has gauged my intentions exactly the way I wrote it. I'd like to mention here that I was slightly disappointed that you saw my letter with sarcasm. Under no circumstances would I write a sarcastic letter to *Digit*. It's been my beacon of light since many years, and just last month I renewed my subscription for two more years.

Even though I'm not from an IT background, my IT friends still ask me for technology advice: what's the latest PC configuration, when is the iPhone coming to India, etc. I quickly check *Digit* issues and get back to them. Clever, eh?

To further prove my point, I'm requesting the design team to keep publishing such covers from time to time. Prasanna, I've scanned that cover...

Navin D'Cunha

Dear Navin,
I look at this as a healthy debate—and I'm also happy other readers are participating! You see, there was *one* cue that made me think your letter was sarcastic—you said something along the lines of your looking back at the cover to see what the model was holding. In any case, I'm now clear about what you meant—and I hadn't held anything against you in the first place.

Thanks for your continued patronage, and here's hoping you like the covers to come!

– Executive Editor

Coming Clean

After reading about piracy and your Linux issue, I removed my Windows XP, which wasn't legal, and installed Ubuntu 7.04 which you provided with your DVD. Then I updated it and installed software. It gives me satisfaction that now I'm not a thief.

However, now, the software on the discs is of no use to me because I have no *Digit* archive for Linux. *Digit*, who supports Linux so strongly, do not have an archive for Linux—not even for Ubuntu! What a shame...

Praveen Agrawal
Jaipur

We do not *yet* have an archive for Linux, Praveen. It takes time, money, and effort. We take our readers' letters seriously, but, like everyone else, we have our resource limitations. We'll do our best, however.

– Executive Editor

Go Open, India!

LETTER OF THE MONTH

I'm in the final days of my RHCE certification course. One thing I've learnt in this course is that Linux truly is a rock-solid OS. It's really fun to use the command line interface!

I recently found on Wikipedia that Linux and open source products are taking a big leap in European nations. The EU and the French Parliament were among the first to adapt Linux as their operating system. They also discarded MS Office and started using OpenOffice.org... there are more examples.

I've learnt that our former president Dr Kalam is an ardent follower of open source. The Supreme Court also utilises Linux and OpenOffice.org for its daily tasks. One question comes to mind: if the governments of developed nations can promote open source software, why can't our Government do it? I'm not against Microsoft, but I'm against their pricing. All official work in Indian offices require MS Office—even clerks use Office! If the Government decided to implement OpenOffice.org (if not Linux) in offices, it would save us millions of rupees. It would also save us a lot of bandwidth in terms of updates.

Then, on the Linux front, there are no viruses, adware, spyware. LIC runs on Red Hat. Some Latin American countries are leading adopters of open source. These countries are also developing countries...

Here in Asia, too, we have many examples. Iran is under sanctions from the US Government. No US-made product can be exported to Iran. They can't even download Java from Sun's site because of sanctions. It seems that they would fall off into the Dark Ages, but they use Linux. China has adopted the open source processor, OpenSparc. Some Indian states like Kerala and Tamil Nadu have migrated their systems to Linux.

Once the use of OSS grows, so will support. Our government should seriously take measures regarding this.

Tarun Brari
Mandi, H.P.

Dear Tarun
This is the fourth time you're writing in, I believe—I'm glad. I just hope someone in the Government reads what you've spelt out.

On my part, all I can add is that I wish the Government would take note of spiralling piracy and its effects.

– Executive Editor

Check your TQ

Company Clues

1 There's a mouse that uses veins on your hand for biometric security! Which?
(a) Larabie BioTech Mouse
(b) Microsoft Wireless Secure Laser Mouse 6000
(c) Fujitsu PalmSecure
(d) LG MicroSafe



2 Which co-founder bid goodbye to his company in September 2007 earlier than announced?
(a) Bill Gates of Microsoft
(b) Steve Jobs of Apple
(c) Jonathan Schwartz of Sun
(d) Justin Frankel of Nullsoft

3 Microsoft's ill-fated Office Open XML (OOXML) format was pitted against...
(a) PDF (b) XHTML
(c) ODF (d) ISO

4 Remember Netscape? What is its new social news site called?
(a) Prosper
(b) Propeller
(c) Pillar
(d) Pillager

5 We're sure you know this one. Which company started the "Get the Facts Right" campaign?
(a) HP
(b) IBM
(c) Apple
(d) Microsoft

6 Which company recently promised to contribute resources and code to the OpenOffice.org project?
(a) Sun (b) Oracle
(c) Apple (d) IBM

7 Sony's new music player moves in sync with the tunes of the song being played! What's it called?
(a) Walkman Neu
(b) Rolly
(c) Bean
(d) A1800

8 What is the latest iPod called?
(a) Tango (b) Access
(c) Micro (d) Touch

9 (A tough one!) What is the measurement for the ratio of mouse movement to onscreen cursor movement?
(a) Joule
(b) Mickey
(c) Gou
(d) Stère

10 What will Yahoo!'s social networking site be called?
(a) Magick (b) Share
(c) Show (d) Mash

Got an interesting question? Send it in with the answer to **TQ@thinkdigit.com** Mark "TQ" in the subject area.

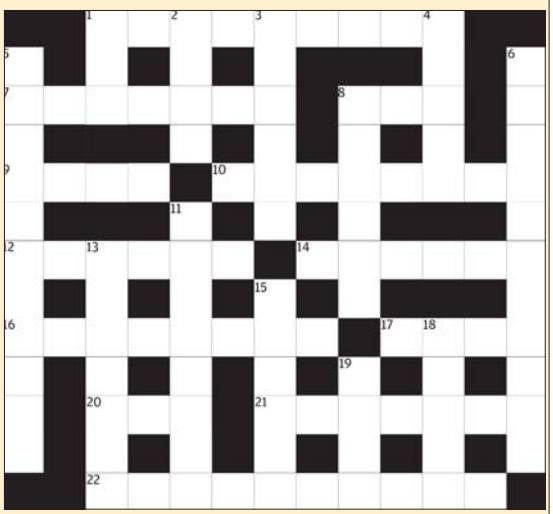
Did You Know?

Windows 95 had 15 million lines of code. XP has 35 million, Vista is believed to have 50 million. Mac OS X is the shocker—86 million! And then, in terms of Price Per Lines of Code, Vista is much cheaper than Windows 95!

Answers

1. (C) Fujitsu PalmSecure
2. (A) Bill Gates
3. (C) ODF
4. (B) Propeller
5. (D) Microsoft
6. (D) IBM
7. (B) Rolly
8. (D) Touch
9. (B) Mickey
10. (D) Mash

Crossword



ACROSS
1. Computer programme identifying phone numbers that connect a modem (3,6)
7. Favourite snack among hackers made of cornstarch and water (7)
8. Digital Audio-Video (abbr) (3)
9. Unit of time equal to sixty seconds (4)
10. Web -------- – architect of a website (8)
12. Largest distributor of the Linux operating system (3,3)
14. Indian Web portal (6)
16. -- ------ display - control panel on a monitor (2,6)
17. Autonomous System Border Router (abbr) (4)
20. Tandem Application Language (abbr) (3)
21. Microsoft's digital multimedia encyclopedia (7)
22. Cable television service by which customers can order access to a particular broadcast for a fee (3,3,4)

DOWN
1. World Wide --- (3)
2. Roll of photographic film (4)
3. Type of computer prionter (6)
4. Sequel to 'Myst' - best selling puzzle and exploration game on CD-ROM (5)
5. Main circuit of a computer containing the CPU (11)
6. Open source data type built upon XML framework-co-related to the Semantic Web (11)
8. Computer programme that interacts with a particular device or software (6)
11. Apple's DRM system used to encrypt copyright files sold on iTunes (4,4)
13. DT in DTP (7)
15. To remove or erase information (6)
18. A sudden pulse of extra voltage (5)
19. Closed Circuit Television (abbr) (4)

Crossword by **Nitta Jaggi**

August's Winner:
Vigneshwar Bose, *Chennai*

Win!

Send in your entries to **TQ@thinkdigit.com** on or by **20th of this month.** One lucky participant will win **Java 6 Programming 2007 Edition**



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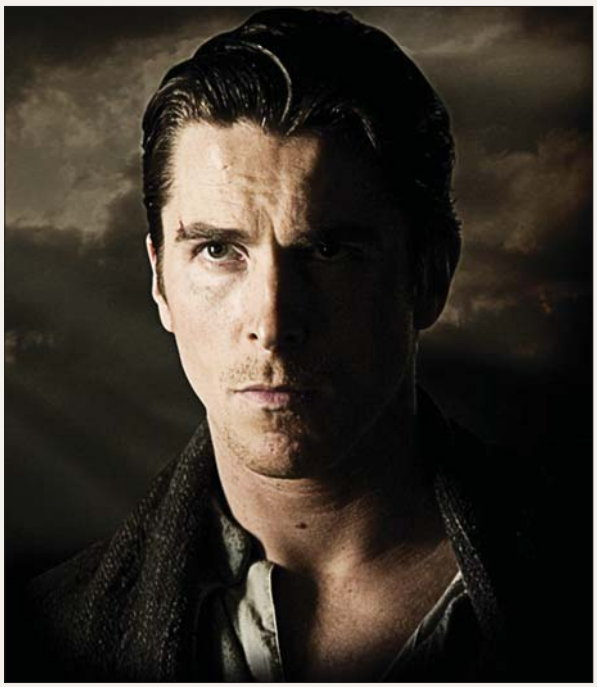
Last Month's Solution



Tabloid TECH

People And Events That Grabbed The Headlines—For Better Or For Worse

Bats, Snakes, Dark Creatures



From vigilante of Gotham City to deep-cover espionage agent is not much of a leap. Christian Bale, who starred as the caped crusader in *Batman Begins*, is reportedly in the running for the role of the protagonist *Solid Snake* in the screen adaptation of *Metal Gear Solid*. The movie will be released in 2009. For those who haven't heard of *Metal Gear Solid*: it's a game in which a shadowy group of terrorists develops a nuclear-powered bipedal war machine, and kidnaps a bunch of high officials. As *Solid Snake*, the player is to foil the world-domination plot and rescue hapless hostages. The usual shebang, you know, with ninjas and mutant soldiers and plenty of gravity-defying stunts and blood and gore.

Apart from Solid Snake's combat skills, it turns out Bale's vocal chords are similar to those of the protagonist in the game. That, and the fact that Bale has done some pretty physically intense roles in the past, might help him to pip the competition and get the role. Watch this area in 2009, or when the movie is released. We promise to review it—even though we're a tech magazine. We love breaking the mould.

The Times They Aren't A-Changin'



Letters are so 1980. And why go about with your pockets stuffed with cash when you have ATMs at every street corner? Guess what: it's not only in the unconnected Third World that people still rely on quaint things like letters and paper money. Some Knights of the British Empire do, too.

Macca a.k.a. Sir Paul—the cute Beatle, in case you've taken a cue from the Bat and have been living in a cave for an inordinately long time—recently said in a radio interview that he was an old-fashioned chap who liked writing letters rather than sending e-mails: e-mails are not "aesthetically pleasing." He has his own point there, being as he is in the business of pleasing the senses of millions.

The Horseless Knight has also revealed he does not use ATMs and do modern things like swipe cards. Reason: he is clueless when using them. He phones his office for money and sends an assistant running to the nearest ATM for that twenty-quid tip at the diner. Oh, to be rich and famous.

Wrong Foot Forward

Britney Spears—whom we vowed never to mention, but whom we're mentioning because she's in the news for the wrong reason—is in the news because she forgot her words. Now that's as ghastly as it gets, because she lip-syncs anyway.

The recently-bald forever-teen has quite a record on MTV's annual Video Music Awards—remember the lip-lock with Madonna? Or the gyration with the snake? This year, she strutted about on stage apparently having rehearsed neither her steps nor her words.

In any case, we're not talking about music (our minds must be musically-challenged, because what "music" this lady peddles, we call bilge). We're talking about traffic figures and download numbers, since we're a tech magazine. What happened was that Britney being ever the Britney, people—from hormonal young girls to neo-hormonal middle-aged men—are ever-interested in her. And not a handful: a record 2.6 million (half the population of Norway) in a single day. That was the number of visits to MTV.com, the Web site that hosted details of her performance, or antics, or bungled steps. Seven million video streams of the performance have also been downloaded—another record for MTV.

Like jaded smokers resolving every year, birthday, and festive eve to quit, we do declare: we shall not mention this über-bimbo again.

Unless she takes up a course in AI, because that's what she needs. Get it?